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Arbor Yemensis fructum Cofe ferens:

OR, A

DESCRIPTION

AND

HISTORY

OF THE

COFFEE TREE.

By Dr. *JAMES DOUGLAS*, Honorary Fellow of
the Royal College of Physicians, *London*: And
Fellow of the Royal Society.



LONDON:

Printed for THOMAS WOODWARD, at the *Half-Moon* over-against
St. Dunstan's Church, in *Fleet-street*.

M, DCC, XXVII.

Ador Tenentes fructum Cofe ferunt

OR A

DESCRIPTION

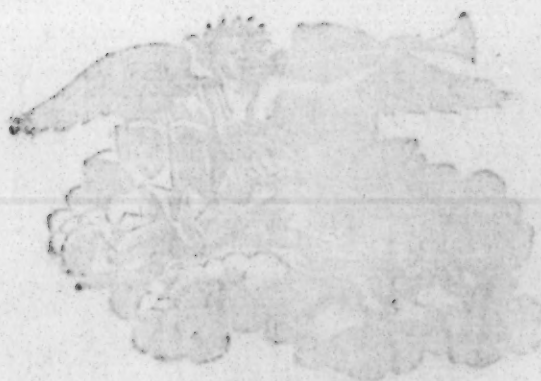
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P R E F A C E.

IN my Botanical Description of the Coffee Berry, publish'd some Time ago, I acquainted the Readers with my Design of treating the whole Coffee Plant, as soon as I should have convenient Opportunities of finishing the Observations about it which I had then actually begun to make. The Delays and Difficulties I have met with in going through this Enquiry, have been greater than I at first apprehended; and I cannot say I have as yet compleated it to my Satisfaction; however, what I now venture to communicate, will, I hope, in some measure gratify the Curiosity of the Publick, and be of some real Use to those who have any Desire and Opportunity of cultivating this delightful Exotick, of the Fruit whereof there is yearly made so vast a Consumption among us.

I begin by a List of Names that belong to this Plant, and having made some necessary Reflections upon these, I give a large Account of the Loci Natales, or Places wherein it is at present found to grow, as well in the Kingdom of Yemen in Arabia Felix, as the other Countries both in Asia, Europe and America, thro' which it has now spread it self, setting down what Informations I have been able to get concerning every Step of its Progress since it first found the Way out of its native Country. Having in the next place premised some general Observations about the Plant it self, as it has been consider'd by Botanical Writers, I go on to a particular Description of all the Parts of it, taken from my own repeated Observations, carry'd as great a Length as it has hitherto been in my Power to do; and I conclude by such Direc-

tions

tions concerning the Culture and Management of it, as I conceive can be of any Service to us here in England.

Upon each of these Heads I have been at Pains to collect what has been said by Authors before me; and besides the historical Facts which I set down from them, I have taken the Liberty to compare their Observations about the Plant it self with mine, as well to point out their Mistakes, as to explain the particular Discoveries made by each of them, in the same Order of Time in which they were published.

I propos'd to have given Figures not only of all the Parts of a full grown Plant, in an agreeable Variety of instructive Views, but also of the several States of it, from the Time it first appears above the Surface of the Earth, both with respect to Age, and the Seasons of the Year; but as I have not as yet been able to perfect these in any tolerable Degree, I chuse to refer them altogether till some more happy Opportunity shall offer; and then, together with a compleat Set of Figures, I shall be likewise in a Condition to lay before the curious Reader the History of the Invention and Progress of the Use of the Coffee Drink, both in Asia, and in the Eastern and Western Parts of Europe; of the several Methods in which it has been prepar'd since it was first known; of the first Institution of Coffee Houses, and of the Virtues which either Opinion or real Experience have ascrib'd to it. I earnestly beg of all curious Persons to impart to me what Memoirs they may be furnish'd with relating to any of these Particulars, and I shall most willingly acknowledge the Favour in the Way I judge will be most agreeable to them.

I conclude by returning my most sincere Thanks to those learned and worthy Friends by whom I have been in any measure assisted in the Prosecution of these Enquiries; and among the rest, I must acknowledge my self in a particular Manner obliged to those two curious Gentlemen, Mr. PARKER of Heling, and Mr. SHERARD of Eltham, to whose invaluable Gardens I had at all times free Access, whenever I found it necessary to view the Coffee Plants, which have continued for several Years to thrive there beyond Expectation; every Season bringing them a new Accession to their former Stock.



THE
DESCRIPTION
OF THE
COFFEE TREE.

CHAP. I.

The Names of the Coffee Plant.

THE Names that have been given by Authors to this Plant, to particular Parts of it, and to Preparations of these Parts, I shall distribute into three Lists: The first, containing those of the whole Plant; the second, those of the Fruit; and the third, those of the Liquor made with this Fruit: And I chose to place all these three sorts of Names immediately after one another, that it may be more easy for those who indulge themselves in such historical Curiosities to compare them together, in the manner that they will find done in the following Chapter, or in any other that they shall think convenient.

The whole Coffee Plant taken together, may, I think, be express'd very justly in the following manner. The Botanical Reader will not be surpriz'd to find this Name in *Latin*; nor will the Length of it be judg'd unsuitable to the Custom of Authors in that Science, on the like Occasions.

Arbor Arabica Yemensis,
Perpetuâ fronde virens.
Folio Castaneæ seu Lauri haud absimili.
Flore Jasminum vulgare quodammodo referente.
Monopetalo,
In quinque segmenta diviso,
Albo,
Odorato.
Vasculo seminali, ut plurimum, bicapsulari, nonnunquam tri-
capsulari, in fructum nuciformem abeunte;
E. cujus nucleis, potus ille saluberrimus Coffee vulgo dictus
paratur.

Or shorter, after this manner,

Arbor Yemensis fructum Coffee Ferens.

I. The Names which have been hitherto given to the whole Plant, and which may be reckon'd synonyma to that which I have pitch'd upon, are these.

<i>Bon vel Ban Arbor.</i>	J. B.
<i>Euonymo similis Egyptiaca, fructu baccis Lauri simili.</i>	C. B.
<i>Arbor Bon cum fructu suo Buna.</i>	Parkins.
<i>Buna Alpini.</i>	Chabr.
<i>Café.</i>	Bernier.
<i>Bon vel Ban,</i>	Blegny.
<i>Bonchum, Buncho, Buncha,</i>	
<i>Elkarie Egyptiorum,</i>	
<i>Cachua Arabum.</i>	
<i>The Coffee Tree.</i>	Plunknet.
<i>Coffee Frutex ex cujus fructu fit potus.</i>	Raii.
<i>Coffee Arbor.</i>	Dale.
<i>Coffee Shrub.</i>	Sloane.
	<i>Arbre</i>

<i>Arbre du Buun.</i>	}	Galand.
<i>Arbre qui porte le Café.</i>		
<i>Arbor Persica.</i>	}	Lang.
<i>Felix Arabica.</i>		
<i>Bannu & Banchos Arabum.</i>		
<i>Caffé ou Coffé.</i>		Tournef.
<i>Jasminum Arabicum, Castaneæ folio, flore albo, odora-</i>	}	Commelin.
<i>tissimo, cujus fructus Coffy in officinis dicuntur nobis.</i>		
<i>Jasminum Castaneæ folio, flore odoratissimo, rubro fructu</i>	}	Volkam.
<i>qui Coffé, duro.</i>		
<i>Gelsimum Arabicum foliis Castaneæ, flore albo ingenti</i>	}	Volkam.
<i>odoratissimo.</i>		
<i>Arbor cofè ferens.</i>		
<i>L'Arbre du Café ou Cafier.</i>	}	De Jussieu.
<i>Jasminum Arabicum Lauri folio cujus semen apud nos</i>		
<i>Café dicitur.</i>		
<i>Jasmin d'Arabie, a feuilles de Laurier, & dont la se-</i>	}	Cheyn.
<i>mence nous est connu sous le nom de Café.</i>		
<i>Arbor Meccana.</i>		

II. Names of the Coffee Fruit.

<i>Bunnu.</i>	}	Rauwolf.
<i>Buncho Avicennæ.</i>		
<i>Buncha Rhazis.</i>		
<i>Bon vel Ban.</i>		Alpin.
<i>Buna.</i>	}	Clus.
<i>Elcane.</i>		
<i>Buncha Rhaz. ex Rauwolf.</i>		
		Cachu.

<i>Cachu.</i>	}	
<i>Eunchi.</i>		Cotovic.
<i>Bunchos.</i>	}	
<i>Bunnum Rauwolf.</i>		J. B.
<i>Granum quo Turcæ somnum fugant Plater.</i>		
<i>Cabvé.</i>		Lavalle.
<i>Coffee.</i>	}	
<i>Cophie.</i>		
<i>Cophy.</i>		Rumsey.
<i>Coffé.</i>		
<i>Ben & Bun.</i>		Banes.
<i>Elcave.</i>		Salmas.
<i>Coffee Berry.</i>		Grew.
<i>Coffa.</i>		Mundy.
<i>Café.</i>		Bernier.
<i>Cahoueh Arabum.</i>	}	
<i>Caveh Turcarum.</i>		Du Four.
<i>Baccæ Coffee.</i>	}	
<i>Coho Seeds.</i>		Berlu.
<i>Coffee, in Latin Coava.</i>		Pechey.
<i>Boncha.</i>	}	
<i>Boncho.</i>		Pomet.
<i>Elkarie.</i>		
<i>Semen Coffee.</i>		Herman.
		Bunn.

Buun.

Galand.

Terris faba missa Pelasgis.

Vanier.

Coffi.

N. Lemer.

Coffee Behnen.

Lang.

Cahoven.

Volkam.

Cofea.

Quincy.

*Faba Meccana quam Coffeam vocant,**Fructus Arboris Meccanæ.*

Chyne.

III. Names of the Liquor or Drink prepared with the Coffee Fruit.

Chaube.

Rauwolf.

Caova.

Alpin.

Choana.

Paludan.

Cave.

Bellon.

Cahua, Cava Itolor.

Cotovic.

Coffa.

Sandys.

Cahue.

Lavalle.

Cabwa.

Olear.

The Turks berry Drink.

Parkins.

Caffé.

Tavernier.

*Cophie.**Turks Physick of Cophie.*

Rumsey.

*Cophy.**Coffee.*

<i>Cabwa.</i>		Pauli.
<i>Cahue seu Caf�.</i>		Banes.
<i>Coffe potus.</i>		Willis.
<i>Caf�.</i>		Bernier.
<i>Ca�et.</i>	}	
<i>Cabua.</i>		
<i>Choana.</i>		Du Four.
<i>Cab�eh.</i>		
<i>Cauphe.</i>		T. Blount.
<i>Coava.</i>	}	
<i>Caph�.</i>		Blegny.
<i>Coffi.</i>		Bontekoe.
<i>Cabouah Arab.</i>		Galand.
<i>Caouhe Turcarum</i>	}	
<i>Coff� Anglorum & Batavorum</i>		De Jussieu.

C H A P. II.

Etymologia.

BY these Names, and no more, that I can find, have the Coffee Plant, the Fruit thereof, and the Liquor made with that Fruit, been expressed. The Lists I have here given of them, tho' they cannot I believe be of much solid Use, may perhaps entertain the Curiosity of some of my Readers; and since I have been at the Trouble of collecting them merely with that View, it will be still worth while to add the few following Observations about them.

1. Tho' some of these Names are common to the whole Plant, Fruit, and Liquor; there are many which are either peculiar to each, or which belong only to two of them; and therefore it was most natural to separate them into three distinct lists, instead of throwing them all into one confused heap, as has been the general practice of Botanists hitherto. Mr. Ray shall serve for an Example of this.

The Name he gives the Plant, is this, *Coffee frutex ex cujus fructu fit potus*.

The Synonyma or Names he sets down from other Authors are these.

Bon vel Ban Arbor, J. B. Item, *Buna*, *Bunnu*, *Bunchos Arabum ejusdem*. *Bon Arbor cum fructu suo Buna*, Park. *Euonymo similis Egyptiaca fructu baccis Lauri simili*, C. B. *Bunnu*, Rauwolf. *Buna ex qua in Alexandria fit potio*, Clus.

Never was there a List of Synonyma compiled with less Judgment than this; for in the first place, it is defective by above four parts in five, as will appear by comparing it with mine; and Defects of this kind are more inexcusable in Mr. Ray than in any body else; for as he has done little any where but collect from other Authors, the least that could be expected from him, is, that his Collections should be perfect, after so many Years Practice.

Again, the Order of Time, in observing which with Exactness, the greatest Beauty of such Compilations certainly consists, is entirely neglected; *Rauwolfus* and *Clusius* are placed after the two *Baubini* and *Parkinson*.

But, which is most to my present purpose, above half his Synonyma are false, J. B. never called the Coffee Plant *Buna*,

Bunnu, *Bunchos Arabum*; *Rauwolfius* never called it *Bunnu*; nor *Clusius*, *Buna*. It is the fruit only they have expressed by these Words, and never the Tree that bears it; and yet Mr. Ray has thought fit to rank them all as so many Synonyma for his *Coffee frutex*, that is, as Names given by these Authors to the whole Plant.

Later Botanists have been so far from not falling into this last mentioned Inaccuracy of Mr. Ray, that they have carried it a great deal further. This Author has only confounded the Names of the Tree and Fruit: but in another, I find the *Coava Egyptiorum* from *Alpinus*, placed as a Synonymum for the *Jasminum Arabicum*, &c. of *Commelinus*; that is, a Name never applied by *Alpinus* to any thing but the Coffee Drink, made to signify the Tree which produces the Fruit of which that Drink is made.

2. That we may be able to take a more particular View of the Names contained in the three foregoing Lists, it will be convenient to subdivide each of them into such as Travellers tell us are used in the Eastern Countries, and those which the *Europeans* have either borrowed from thence, or invented of their own, since Coffee was known amongst them.

As to the first of these, I am surprized to find that no Traveller, except Monsieur *Galand* alone, has given us any Name by which the Coffee Plant it self is expressed by the *Arabians*, or any other Eastern People: The whole List we have given of these Names, except that of the *Bun* Tree, from *Galand*, has been coined in *Europe*, by those who knew nothing of the Plant, but only that it produced the Coffee Fruit; and they who have expressed it otherwise than by such a Circumlocution, have only discover'd their own Ignorance, and the little Care with which they have read the Books of Travels quoted by them. *Chabreaus*, *Blegny* and *Langius*, are of this number; but *J. B.* and *Parkinson*, who likewise use Oriental Words in expressing the whole Plant, have kept within due Bounds.

3. The Eastern Names of the Fruit, are either such as have some Relation to *Bunchum*, *Bon*, or *Cahouah*.

The first Kind, tho' there be perhaps some of them that are really Oriental Words, as *Bunchum* its self is, are not however to be reckon'd Eastern Names for the Coffee Fruit; because they have only been apply'd to that upon the Supposition of its being known to *Rhazes* and *Avicenna*, and called by them by the Name of *Bunchum*, or something like it, which we shall shew to be a Mistake. Two *Persian* Physicians were undoubtedly the first who fell into it; but it is from *Rauwolfius* that it has been handed down among European Writers.

Bon,

Bon, or rather *Buun*, and the other Names which consist of the same Consonants with it, seem to be those by which the Fruit has been most generally expressed in the East; but whether some part of the Variety that is to be found in them may not be owing to the Mistakes of Travellers, I leave to the Judges of the Eastern Languages to determine. *Salmasius* has, I think, given us one plain Instance of it in *Alpinus*, and *Monf. Galand*, (if we will believe *La Roque*) another in *Banefius*, tho' a *Syrian* by Birth.

The third Sort of Names for the Fruit, we shall consider together with those of the Liquor, they being derived from thence.

4. Concerning these, the following Remarks from Authors are worth setting down.

' It will hardly be believed, says *Monf. Du Four*, that tho' Coffee has been drank for so many Years past, we should still be ignorant of the true Name of it. The Authors who have written upon this Subject differ from one another as much in the Names they give this Liquor, as in the Qualities they ascribe to it. Some tell us that before it be ground it ought to be called in *Latin*, *Bunchum*; and in *French*, *Bon*; which they pronounce, *Bun*. After it is reduced to Powder, there are a great many other Names given it, which have been already set down.) But *Monf. D' Arvicuse*, the *French* Consul at *Aleppo*, who had been at great pains to inform himself while he remained there, tells me that the true Name of the Coffee Bean, among the *Arabians*, is *Cahoueh*, the *Arabians* having no *v* Consonant; but the *Turks*, and other Eastern People, pronounce it *Cabveh*; and that Word is derived from *Cohuet*, which signifies Strength or Vigour; and the Coffee Fruit is so called because of the Effects ascribed to it.

This Etymology did not, however, satisfy *Monf. Galand*; as appears from the Account that *La Roque* has given us of that Part of his Book. ' *Monf. Galand*, says he, begins by establishing the original and proper Signification of the Word *Coffee*; and according to him it comes from *Cabveh*, as it is pronounced by the *Turks*, with an *v* Consonant; and it is the same thing with *Cahouah*, amongst the *Arabians*, who pronounce their *v* Consonant as the *Italians* do their Vowel *u*.

' *Cahouah* is the Infinitive of a Verb, and signifies to loath, or to have no Stomach; and it is likewise one of the different Names which the *Arabians* give to Wine, because they think the Excess of it produces these bad Effects.

From this Signification of Wine in particular, the Word *Cabouah* has been extended to all sorts of Drink; and therefore this Word is not used either for the Tree or Fruit, but only for the Drink made of it.

The Fruit is called *Buun*; and the Tree, the *Buun Tree*.

Monf. *Galand* goes on to remark some Mistakes of *Banefius*; and then adds, That if that great Professor could be mistaken in his own Language, it is but just to excuse Monf. *Du Four's* Friend, who says that *Caboueh* is the *Arabick* Word for the Coffee Fruit; which is rather a *Turkish* Pronunciation than *Arabian*, since there is no *e* in their Alphabet. Moreover, that Gentleman has confounded the Term *Caouä*, with that of *Cabouah*; tho' they are both written and pronounced very differently.

If this Account of the Original and true Signification of the Word *Cabouah* be just, as there is no Ground to doubt of either, considering both the extraordinary Skill of that Author in the Oriental Languages, and the long Stay he made in the East; we need be at no Loss what Judgment to make of all the Eastern Names that have been given to the Coffee Drink; they may all be easily derived from the *Arabick*, *Cabouah*; and the Variety that is to be found in them is owing either to the real Changes they have undergone in the Mouths of the different Eastern Nations, *Persians*, *Egyptians*, *Turks*, &c. or to the Mistakes of Travellers, most of whom being ignorant of these Languages, have not always equally well expressed, in Writing, the Sounds by which they heard this Liquor signified in the different Countries of the East. Neither are such Mistakes to be wondred at, considering how common they are even among the different Nations of *Europe* at this Day; whose Languages have a nearer Relation to one another, than the Eastern Languages have to any of them. Let a *French* Man, for instance, hear forty *English* Words distinctly pronounced one after another, several times over, it is forty to one at least, that he does not write two of them right. There are Examples enough of this in all the *French* Writings, where there is occasion to mention any *English* Words; and we have one in the foregoing List. Monf. *De Jussieu* tells us very gravely, that both the *English* and *Dutch* call this Liquor *Coffé*: with a single *é* accented; only for this Reason, because he has heard the Word *Coffee* pronounced nearly the same way as a *French* Man would do, had it been spelt after his manner.

From Monf. *Galand's* Etymology we learn likewise, that all the Words by which the Fruit it self has been signified, that have any Resemblance to *Cabouah*, which make the third Class of the Eastern

Eastern Names of it, are not to be looked upon as such, being never used in that Sense by the Orientals.

5. From these Eastern Names are derived those by which all the *European* Nations do ordinarily express both the Coffee Plant, Fruit and Liquor. As we had the first Knowledge of these things from them, it was natural to take their Names along with them, and only by degrees new mould them a little, according to the Genius of each particular Language into which they were adopted.

The *Turkish* way of pronouncing *Cahouah*, viz. with an *v* Consonant, as we have heard, occasioned first the writing of it here in *England* with *ph*, and afterwards with *ff*; which is equivalent thereunto. The *ca* we find changed into *co*, in *Sandy's* Time; i. e. in the Year 1628, in which his Travels were published; and it was near the Year 1659, that is, several Years after there were publick Coffee-houses in *London*, before the Termination *ee* was fully settled; for we find Judge *Rumsey* and Sir *Henry Blount* writing this Word sometimes with *ie*, sometimes with *ee*; but *Howel* always uses the latter; and it has continued ever since his time. Sir *Thomas Pope Blount* writes it sometimes *cauphe*, having found it so written, probably, in some old Book: From whence there is ground to conclude, that the *Turkish* *ca* was first changed into *cau*, which being pronounced pretty much the same way as *co*, this last, as being shorter, came at length to be used instead of it.

Variations of the like kinds, and by the like degrees, may be observed, no doubt, in the other modern *European* Languages: But it is not our present Business to enquire further into them.

As Coffee was unknown during all the time in which the *Latin* can in any Sense be said to have remained a living Language, we are not to expect any true *Latin* Word for it: To supply that Want, Authors who affect to find *Latin* for every thing, how much soever unknown to the *Latins* themselves, have had Recourse to the two universal Engines, which are always ready in time of Need, viz. inflecting the last Syllable of this Word into a *Latin* Termination, and expressing it by long Circumlocutions, which ought rather to be called Descriptions than Names. Of the first kind is the *coffea*, æ, of Dr. *Quincy*, and the *coarva* of *Pechey*. The former is allowable enough, had there been any Necessity for it; but the other is owing either to the Stupidity of its Author, or used with a Design to impose on the Reader: For what can be concluded from these Words, *coffee* is in *Latin*, *Coava*; but either that *Pechey* took *coarva* for a genuine *Latin* Word himself, or had a mind to persuade other People that it was so?

It

It is needless to enumerate the various things that have been made use of by Authors, as a Foundation for the Circumlocutions by which Coffee, and especially the Coffee Plant, has been expressed: It is sufficient to remark, That those most in Vogue now-a-days have been taken from the Agreements observed therein with these Parts of the Jessamins which Botanists principally attend to in distributing Plants into Classes, Sections, Genera, &c. by this means *Jasminum* is become the generical Word for it; and the rest of the Circumlocution is only a Catalogue of Differences by which it is distinguished from the other Species of Plants ranked under the same Genus with it; or a sort of Description of what is thought to be most remarkable in it.

C H A P. III.

Locus Natalis.

IT would be to no Purpose to take Notice of all the Mistakes that both Botanists and Travellers have been guilty of in determining the Countries where Coffee grows: Some have brought it from *India*, others from *Persia*, others from *Egypt*, and a great many from that Country of *Arabia* where *Mecca* is situated; but it is now past all Dispute, that Coffee grows no where in *Arabia*, but in the Kingdom or Province of *Yemen*, in *Arabia Felix*; nor any where else in the World, except in the Islands of *Java* and *Bourbon*, and some other Places where it has begun of late to be cultivated by the Industry of the *Dutch*, *French* and *English*; of which in the proper Place.

This Kingdom of *Yemen*, as all the other Parts of the vast Territories of *Arabia*, is still too much unknown for the Reader to expect any particular Account of it; *Monf. De Lisle* has been at all possible Pains to give us an accurate Map of so much of it as he could get any tolerable Informations about, either from the *European* and *Arabian* Geographers, or from the *French* Officers who were upon the two Expeditions lately made from *St. Malo's* to *Moca*; of which *Monf. La Roque* has given us a very compleat Relation; yet even that is very imperfect.

However, that I may not leave my Readers altogether unacquainted with the Country to which all the World is beholden for the Fruit which I am now describing, I have thought it pro-

per to insert here a short Abstract of a Journey from *Mocca* to the Court of the King of *Yemen*, undertaken by some Persons in the second of the forementioned Expeditions; and likewise published by *Monf. La Roque*.

The two Vessels of which this second Expedition consisted, arrived at *Mocca* on the 11th of *December*, 1711; and soon after, the King of *Yemen*, of which Country *Mocca* is now the principal Sea-Port, fell sick. His new Minister, who at the time of the former Expedition had been Governor of that Place, extolled the Skill of the *French* Physicians, and advised him to send for those that he heard were lately arrived. The King consented, and charged *Cheick Saleh* himself, (that was the Minister's Name,) with this Affair; who thereupon immediately dispatch'd two Deputies to the *French* Captains, with a very obliging Letter, signifying the Subject of their Commission.

The Captains, after some Deliberation, concluded at last that this was a fit Opportunity to shew the King some Samples of the Grandeur of *France*, and to discover as much as they could of the Country to which they were then establishing a Trade. Hereupon the proper Persons were pitched upon; and having receiv'd their Instructions from the Commanders, and likewise some Presents for the King, they left *Mocca*, well mounted on horseback, the 14th of *February*, 1711-12. Their whole Company consisted of about twenty Persons, under the Guard of a Troupe of Horse, their Baggage and all Necessaries for their Journey being carried by Camels, and other Beasts of Burthen.

They set out about four a Clock in the Afternoon, and travell'd all the rest of that Day, and a good Part of the Night, and about three in the Morning they arrived at *Mofa*, a little Country Town ten Leagues distant from *Mocca*.

The next Day they travelled fifteen Leagues, to *Manzary*, where there being only six or seven Houses, they passed the Night under Palm and Poplar Trees.

For eighteen Leagues further the Roads were exceeding good, the Country being almost one continued Plain, at the End of which lies *Tagus*, a Town much renowned amongst the Inhabitants, and strongly walled, with a Castle which commands the whole Town. The Governor was Son to the late King, and the Deputies did not fail to pay him their Respects. He received them very civilly, and treated them, amongst other things, with Coffee, *a la Sultane*; a Drink made of the Involucra of the Fruit only, and much in Request all over that Country.

From thence they continued their Journey towards *Manzuel*; and about six Leagues from *Tagus* they had the Pleasure of seeing Coffee Trees for the first time; and these pass for the most beautiful and best cultivated in all *Yemen*.

Manzuel has nothing remarkable; and from thence they went in two Days to *Yram*, lying the first Night under the Trees.

After they left that Town, they found the highest Mountains which are in the Kingdom; and the Country, which till then was pleasant enough, tho' mostly mountainous, began to be dry and barren; no Trees were to be seen there, nor Valleys full of Coffee Plantations, as they had hitherto frequently met with.

From *Yram*, they went to *Damar*, another considerable Town at fifteen Leagues Distance. The Roads were uneasy, and the Heat excessive, till after Sun-set.

At *Damar* the Scene changes again, and a very fine Country begins to open. *Muab*, the Residence of that King, is but a quarter of a League from thence, and the Deputies arrived there the eighth Day after they left *Mocca*; having travelled above an hundred and twenty Leagues almost constantly to the North East.

Their Reception, and all that befell them during the three Weeks they remained there, I leave to be consulted in the Author, there being but little of that which has any Relation to my present Design.

The Town of *Muab* is remarkable for nothing but the Prince's residing there. One of the Suburbs is wholly inhabited by *Jews*, who are never allowed to lie within the Gates. The Air is very good. Between nine in the Morning and four in the Afternoon the Heats are great; but it is pretty cool both before the rising and after the setting of the Sun.

The Soil about the Town appear'd every where very good. All the Plains were sown with Wheat and Rice; and the little Hills and Valleys were planted with Coffee Trees, Vines and Fruit Trees.

There was nothing remarkable in the King's Gardens, except the great Pains taken to furnish it with all the Kinds of Trees that are common in the Country; amongst which there were Coffee Trees, the finest that could be had. When the Deputies represented to the King how much that was contrary to the Custom of the Princes of *Europe*, who endeavour to stock their Gardens chiefly with the rarest and most uncommon Plants that can be found. The King returned them this Answer, That he valued himself as much upon his good Taste and Generosity as any Prince in *Europe*; the Coffee Tree, he told them, was indeed very
common

common in his Country, but it was not the less dear to him upon that account; the perpetual Verdure of it pleased him extremely; and also the Thoughts of its producing a Fruit which was no where else to be met with; and when he made a Present of that that came from his own Gardens, it was a great Satisfaction to him to be able to say that he had planted the Trees that produced it with his own Hands.

The Kingdom of *Yemen* is not hereditary, but he that has had the Art of making himself the strongest Party during a King's Life, is commonly his Successor; and the King takes all possible Care to gain every Body in Favour of his Children or nearest Relations.

The King is independent, being tributary to no other Prince; and as a Proof of that, while the Deputies remained at *Mouab* there arrived Ambassadors to him from the Grand Seignior. It was given out that it was only an Embassy of Ceremony and Compliment; but the true Reason was to persuade the King, not to allow the *Europeans* the Liberty of exporting Coffee by the *Red Sea* directly, which was a great Loss to the *Turks*.

The King being at length perfectly recovered, the Deputies took Leave of that Court, and returned to *Mocca*; they came back the same Way they went, but not being in so great a Hurry, they had more Time to make Remarks concerning the Country.

The greatest Part of the Mountains are barren, being burnt up by the Heat of the Sun. They produce no great Trees, but upon the lower Sides of them there are Plenty of Coppices. They met with red Partridges bigger than ours, Quails and Turtle Doves in abundance, which the *Arabians* never offer to shoot. The Foxes and Monkeys were so tame, that let a Man go as close to them as he pleased, they never offered to run away.

But the greatest Curiosity of our Travellers, upon their Return, was to observe every thing that relates to the Coffee Plantations, and to inform themselves of the *Arabians* concerning them.

Besides the Coffee Trees, there were to be seen in the same Plantations with them, a great many other Sorts of Fruit Trees, such as Peaches, Apricocks, Almonds, Citrons, Oranges, Figs, Apples, &c.

They were informed, that besides the Towns which they saw, there were others of very great Note, amongst which is *Sanaa*, formerly the Capital of the whole Kingdom, and the Seat of their Kings. There are likewise several of the great Roads of the Kingdom paved for above an hundred Leagues together.

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These are the Particulars contain'd in this Relation; which may serve to give at least some general Notion of the Country which produces Coffee. The true Extent of it is not as yet known; and much less in what Parts of it Coffee Trees grow, or how much Land is yearly employed for these Plantations. Mr. Bradley tells us, that the greatest Part of them are a few Days Journey inland from *Mocca*, and near the City *Sanaa*, about twenty Degrees of Northern Latitude. And in another Place, that the Coffee Tree is found from the Latitude of eighteen to twenty Degrees North.

We shall hear something more determinate about this from Mr. De la Morveille, in what he has said about the Coffee Trade. But as the Coffee Plant has now, notwithstanding all the Pains the *Arabians* have been at to prevent it, found its Way to other Parts, and is there cultivated with good Success; an Account of the Manner in which that happened, and what have been the Consequences thereof, belongs likewise to the History of the *Locus Natalis* of this Plant. And here I must begin by observing, that by a late Account sent to Mr. De Jussieu at *Paris*, from one Mr. Gaudron, an Apothecary at *St. Malo's*, publish'd in the History of the Royal Academy, it would seem that the Coffee Plant, or at least one Species of it, was a Native of the Island of *Bourbon*, near *Madagascar*, as well as of the Kingdom of *Yemen*.

' The Inhabitants of the Island of *Bourbon*, says Mr. De Fontenelle, ' having seen some Branches of the Coffee Tree, full of ' Leaves and Fruit, which a *French* Vessel had brought from ' *Mocca*, presently discover'd that they had the same Sort of ' Tree growing upon their Mountains; and upon comparing ' them together, the Ships Company were convinced that they ' were really alike; only that the *Bourbon* Coffee Fruit is longer, ' smaller, and greener than that of *Arabia*, and when burnt has ' a bitterer Taste.

Whatever Way this Plant got into that Island, it is certain that the *French*, to whom it belongs, have lately cultivated Coffee there with good Success, and have sent several large Quantities into *Europe*; and it is not long since the publick News-papers gave us an Account of the Sale of one Parcel by the *French East India* Company at *Paris*, which was said to be as good as any that comes from the *Levant*. Tho' we should suppose this an indigenous Plant of that Island, yet it has been so lately known there, and that only by comparing it with others brought from *Arabia Felix*, that had not a Way been found of propagating it from
this

this Country, *Europe* might still have been without it; and the Curious might still have had Reason to complain in these elegant Words of Mr. Ray, *Mirum tantum Thesaurum unius gentis, peculium esse, tamque lucrosæ stirpis Plantaria, intra unius Provinciæ Angustias coërceri. Mirum vicinas Nationes extimulante invidia aut avaritia, ea jam pridem non vel vi depopulatas esse, vel semina aut vivas radices dolo surripuisse. Mirum quem vigilem draconem Coævetic suis tuendis præficient indigenæ, qui omnes insidiantium technas, & conatus frustretur & eludat.* But now, by the Care and Industry of the sagacious Dutch, the Ground of that Complaint has ceas'd, *Delusæ jam vigilantissimi Draconis Arabici technæ, Arborque non tantum in alias Asiaticas transplantata nunc Regiones, sed & in Europam nostram transvecta, lætè nunc in Belgio & Septentrionalibus Oris, accedente indefessis culturæ curis virescit.* As *Volkamerus* has well expressed it.

How the Dutch made themselves Masters of the Coffee Plant, has been variously related by Authors: Some are of Opinion, that they found Means to carry off a whole Tree by Stratagem; and Mr. Bradley, amongst the rest, has related a Story to this Purpose. But it is from Professor *Boerhaave* that we learn the whole Truth of this Matter; and likewise by what Means the Plant was brought into the *Amsterdam* Garden. *Nicholas Witsen*, Burgomaster of *Amsterdam*, and Director of the Dutch East-India Company, wrote several times to M. *Van Hoorn*, then General of *Batavia*, to cause some fresh Coffee Seeds to be brought from *Mocca*; and to be planted and cultivated with all possible Care in the Island of *Java*, of which *Batavia* is the Capital. *Van Hoorn* did as he was directed; and having in a little time rais'd a considerable Number of Plants, he sent one of them to *Amsterdam*, in a Present to *Witsen*, who, as he had been the original Founder of the Physick Garden there, thought that the most proper Place for it to be lodg'd in. There it soon bore Fruit, from which many new Trees have already and still continue to be rais'd. This Relation that learned Author assures us he had from *Witsen* himself; but his original Words, of which I have here given the Substance in English, deserve to be set down: *Amplissimus vir Nicolaus Witsen, Amstelædamensis Consul, atque Indiæ Orientalis Societatis Præfectus, postquam sæpe literis monuerat Primum Societatis Indiæ Præfectum Van Hoorn ut Semina recentia Caffè Moschæ Arabiæ Felicis urbe deferenda curaret, atque in insula Java in cujus Metropoli Batavia habitabat, terræ commissa foveret; cui ille jussu parens, arboreque inde nactus plurimas, unam misit amplissimo viro, qui statim quam liberalissimè incomparabili hoc Ornamento donavit hortum Amstelædamensem, cujus*

olim & Conditor fuerat. Ibi tulit dein fructus, ex quibus satis novæ assiduò stirpes prodeunt. Ita quidem, ut rarissimæ Arboris Spectaculum in Europa unius Witsen curæ debeatur & liberalitati, errentque qui aliter hac de re publicè commentati sunt, ut suis ad me datis literis ipse amplissimus vir memonuit. The Authors M. Boerhaave here means, are probably the Relaters of that Story of the Dutch having stollen away a whole Plant from *Arabia*; which we have already taken Notice of.

Concerning this Coffee Plantation in *Java*, Mons. *La Roque* speaks in these Words: ‘ The wise and sagacious *Dutch* have planted Coffee brought from *Arabia*, near *Batavia*, and by transplanting, and other proper Methods, they have rais’d many Trees there: The Success, nevertheless, does not fully answer, since they continue still to send Ships and ready Money into the *Red Sea* to purchase Coffee from the *Arabians*. It is pretended, that the too great Heat of that Climate is the Reason why the Fruit seldom comes to due Perfection. And indeed Coffee Trees require a moderate Heat, much Shade, and a fresh free Air.’ This Author acquaints us further, That the *English* likewise had begun to plant Coffee at *Fort St. George*, in the *East Indies*; but with so little Success, that he was inform’d they had now laid aside all Thoughts of that Design.

Whatever might be the State of the *Dutch* Coffee Plantations in *Java*, when M. *La Roque* wrote, they are now in a very thriving Condition; great Quantities of Coffee being every Year brought from thence into *Europe*. As for any Design of planting Coffee about *St. George*, I never could hear that that was carry’d further than meer Curiosity.

But now to return to the *Amsterdam* Garden, the Universal Nursery of Coffee Trees for all the Western Parts of *Europe*; I can neither find in what Year that Plant was brought thither, nor to what Place the first Trees were sent from thence. We may however probably conjecture, that the neighbouring Gardens of the United Provinces were first supply’d; but I find no printed Account of any sent out of *Holland*, before those which *Christoph. Volkamerus* saw in M. *Munnukhausen’s* Garden in *Germany*; of which, as likewise of some Seeds sent by *Commelinus*, the famous Botanick Professor at *Amsterdam*, to his Brother *Joh. Georg. Volkamerus*, he has given the following Account: *Misit Café fructus cera obductos conjunctissimo fratri Dn. D. Joh. Georg. Volkamero, ex Amsterodamensi horto Excell. Comelinn. Floræ illud delictum. Arboris autem Café ferentis ramum quem hic delineavimus summa liberalitas Excellentissimi Domini L. B. a Munnickhausen Magnæ nunc Britan-*
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niae Monarchae Potentissi, & Electoris Brunswicensis Hannoverani (quem Deus T. O. M. servet & tueatur) Thesaurarius & consiliarius intimus, ex horto suo Swebberhano prope Hamelense Fortalitium extracto, cum regiis certe comparando, mihi quod grata mente recolo exhibuit.

This Account is dated in 1714; M. Munnickhausen must therefore have had his Plant before that time; but we are sure it was in that Year (Mr. Bradley says about the latter End of it) that the Magistrates of *Amsterdam* sent a large Tree bearing Fruit in a Present to the late *French* King. *Monf. La Roque* saw it immediately after it was plac'd in the Royal Garden at *Paris*; and from what he says, we likewise learn that there were some small Plants there before. " On the 29th of *July*, says that Author, *Monf. De Jussieu*, Doctor of Physick, and Royal Professor of Botany, was so kind as to carry M. *Galand*, Arabick Professor in the Royal College; M. *Parent*, of the Academy of Sciences, M. *Onange*, a learned *Chinese*, and my self, to the Royal Garden, to see the young Coffee Plants that are there; but at our Arrival we were told that the King's first Physician had sent thither the great Coffee Tree lately come from *Holland*, and which had been presented to His Majesty by the Magistrates of *Amsterdam*. We went therefore first to see this rare Plant; and we considered it a great while with Pleasure. It was in a Case in the same Glass Frame with the Torch Thistle of *Perou*, being about five Foot high, and not above one Inch Diameter. It shoots out divers little Branches that arise all along the Stalk, and altogether form almost a Pyramid; the Leaves are all rank'd in Pairs, but not so big as those I had from *Arabia*. And M. *Galand* perceiv'd no Difference between this Tree and one he had seen at *Constantinople*. There was green Fruit upon it about the Size of a small Plumb; red Fruit almost like a Cherry, and some nearly ripe, of a much deeper Colour. The *Hollander* who was intrusted with the Care of it, and came along with it from *Marly*, told us there was another still at *Amsterdam*, much larger than this, being as high as the second Story of an House, and proportionably thick. This great Tree came originally from *Arabia*, being transplanted very young, and carried to *Java*, where after it had grown for some time, it was at length sent to *Amsterdam*, and there continues still to prosper. (In all this our Author was misinform'd.) From the Fruit thereof a great many Trees have been rais'd; some of which have bore Fruit at three Years old; and, as the *Dutchman* told us, the Tree sent to the King was of this Number.

‘ M. De

‘ M. De *Jussieu* carry’d us afterwards to see the other Plant which
 ‘ came some time before from *Holland*. It is as yet but very in-
 ‘ considerable, bears no Fruit, and is but about a Foot and an
 ‘ half high, tho’ very fresh and in good Plight. But to return
 ‘ to the first, in order to satisfy my Curiosity compleatly, I want-
 ‘ ed now only to see it in Flower; and this I had the Pleasure
 ‘ of, by M. De *Jussieu*’s Means, in about five Weeks after. I saw
 ‘ some of the Flowers unblown, others perfectly open and spread,
 ‘ and from thence I was fully convinced of the Truth of every
 ‘ thing I have advanced in my Memoirs on that Subject.

In this same Year, 1714, Mr. *Bradley* tells us, the *Dutch* sent
 over several Trees to their Settlement at *Surinam* in the *West Indies*,
 in order to cultivate them in that Country, where he thinks they
 will undoubtedly turn to good Account; as he is persuaded they
 would do, if they were propagated in the South Parts of *Caro-*
lina. That Trial I believe has not as yet been made, but there
 is now a very large Stock of Coffee Trees in *Barbadoes*; from
 whence not only whole Plants, but even some Pounds of dry’d
 Fruit have been sent to *England*. And I am inform’d by Mr.
Philip Miller of *Chelsey*, that in the Year 1720, one Capt. *Young*
 carry’d the first Plants from *Surinam* to that Island. If we may
 believe Mr. *Bradley*, in his late Appendix, it is owing to His
 former Writings that ever they thought of cultivating Coffee
 there. ‘ I am, says he, the more particular (*about making hot-beds*,
 ‘ *no doubt very necessary in Barbadoes*) on this account, because I
 ‘ now find that my former Writings concerning Coffee, have
 ‘ brought that Plant to be familiar in our *American* Plantations,
 ‘ I mean the Island of *Barbadoes*, where at present there is a great
 ‘ Number of Plants in a fruit-bearing State, from whence some
 ‘ have been brought to the Royal Palace at *Hampton Court*, in a
 ‘ prosperous Condition; and I doubt not but the Plant, for its
 ‘ Beauty and Curiosity, will be as much coveted by all Lovers
 ‘ of Gardens, with us; especially since the same Expence, in
 ‘ point of Culture, will serve for the Education of all the choice
 ‘ Fruits of the hottest Climates.

But to return to the Progress of the Coffee Plant in *Europe*.
 Being by this time pretty common in the Northern Countries
 thereof, it at length found its Way over the *Alps* into the Physick
 Garden at *Pisa*, from whence, no doubt, it has now spread to
 the other curious Repositories in *Italy*. It is M. *Tilli*, Botanick
 Professor at *Pisa*, who acquaints us with this Circumstance. The
 Grand Duke, he says, being inform’d that the Coffee Tree was
 cultivated in the *Amsterdam* Garden, desir’d of the Director there-
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of that he might have a Plant for his Physick Garden at *Pisa*; and as they readily consented, it accordingly arriv'd safe at *Leghorn* in 1715, in the hottest time of the Year, having sustain'd no Damage in the Voyage; and being from thence transported to *Pisa*, it continues there to flourish and bear Fruit to Perfection, from which many young Plants have been rais'd. *Hujus rarissimæ Plantæ in Amplissimo Amstelædamensi horto Vegetantis ad Aures Regiæ Celsitudinis Magni Ducis Rumor pervenerat, & sicuti omnes ejus impetus tam in genere Scientiarum quam in genere novitatis ad laudem semper sunt propensi, ut honesta & utilia quælibet animus ejus continuè cogitet, hanc plantam quoque ex horto Amstelædamensi in Pisanam urbem transferendam cogitavit; hinc factum ut tanti Principis nomine, claritate ac benevolentia illustrissimi & nobilissimi ejus horti curatores ad nos Anno 1715, hanc Casé plantam titulo & descriptione Jasmini Arabici Castaneæ foliis flore albo odoratissimo a Doctissimo Commelino facta, omni cura & diligentia miserunt. Hinc & Navis Gubernator suam adhibuit operam & sollicitudinem; opportune enim Liburnum appulit; tunc æstus erat gravissimus, flagrantissimo sidere Cælum incaluerat, attamen a tanta Locorum distantia, absque ullo Hybernaculo nihil deirimenti acceperat.*

When the Coffee Tree was first seen in *England*, I am not able positively to determine. Mr. *Wise*, His Majesty's chief Gardiner, assures me, that some time before the Death of the late Queen *Mary* this Plant was in the Royal Garden at *Hampton Court*; and I have been told, that the late Bishop of *London*, Dr. *Compton*, had one at *Fulham* in 1696. brought directly from *Batavia*, by one Capt. *Adams*.

In the Year 1706, Her Grace the Dutchess of *Beaufort* (as I am inform'd by the Gardiner) had one at *Chelsey*.

In 1712 it was certainly in the Right Honourable the Lord Viscount *Weymouth's* Garden at *Long Leate* in *Wiltshire*. This appears by a Catalogue of all the Stove and Greenhouse Plants and Annuals in that Garden, taken July 28, 1714, when that Nobleman died, communicated to me by my worthy Friend the Reverend and Learned Mr. *Harbein*; in which Catalogue I find the true Coffee Plant three Foot high sent to my Lord from *Holland*, in 1712.

But the first printed Account we have of any Plants sent from *Amsterdam* to *England* is by Mr. *Bradley*, in his first Treatise of Coffee, publish'd in 1714; that is, in the same Year in which he himself saw them in *Holland*. 'The Heer Gerebrand Pancrass, 'Commissary of the Garden, and President of the City of *Amsterdam*, did me the Honour to accommodate me with this great

Curiosity, which I sent into *England*, and intrusted to the Care of Mr. *Thomas Fairchild*, a most accurate Gardiner at *Hoxton*.

Dr. *Sherrard* has been so kind as to inform me, that about the Year 1719 he sent a Coffee Plant to Dr. *Eudal* at *Enfield*; and in 1723, his Brother, Mr. *Sherrard*, had some for his fine Garden at *Eltham*, likewise directly from *Holland*.

In 1724, Mr. *Parker* of *Heling* had two Plants sent him from *Amsterdam*.

There has been likewise a good Number of Plants sent directly hither from *Barbadoes*. Those that came last Summer to His Majesty, were sent by the Governour of that Island, and entrusted to the Care of Dr. *Gamble*. His Royal Highness the Prince, and the Duke of *Chandos* had some by the same Ship.

C H A P. IV.

The Coffee Plant in general.

IN this Chapter my Design is only to lay before the Reader a short View of the Sentiments of Authors concerning the Genus of this Plant, with respect to *Theophrastus's* general Division of Vegetables; and to remark the other Plants to which it has been compared. The Observations which belong to this Place, are therefore such only as could not conveniently be rank'd under any Head of the following Description, and at the same time serve to convey a general Idea of the whole Plant, the particular Parts of which I am afterwards to examine.

Every Body knows that *Theophrastus* has divided all Plants into these four Classes, Trees, Shrubs, Under-shrubs and Herbs. The Coffee Plant has been thought by different Authors to belong to every one of these; for it is by some called a Tree, by others a Shrub and Bush, by others an Herb, in express Terms; and by others, in fine, it has been compared to different Plants of all these Kinds.

Alpinus, the first Author who has mention'd the Coffee Plant, calls it a Tree, and compares it to the *Euonymus*, a few things excepted concerning the Figure and Substance of the Leaves. It is not easy to determine what *Euonymus* is here meant; did he not seem to place the chief Difference between the Coffee Plant and that, in the Leaves, I should be apt to think he had in view the

the Spindle Tree, which grows commonly in Hedges in most Counties of *England*, for the Leaves thereof bear a very great Resemblance to those expressed in *Alpinus's* Figure.

J. B. who only copies from *Alpinus*, what he has said about this Plant, agrees with him likewise in calling it a Tree, and both he and his Brother *C. B.* compare it to the *Euonymus*, without any farther Explication.

Petrus de la Valle, the celebrated *Italian* Traveller, in a Letter dated at *Constantinople*, 1615, calls it also a Tree. It grows, he says, near *Mecca*; and of the Fruit the *Turks* Drink is made.

Garcias Silva Figueroa, in the Account he has given us of his own Embassy from *Spain* to *Persia*, begun in 1617, tells us that the *Persians* made their Coffee of certain Herbs.

Veslingius, in his Notes on *Alpinus*, 1638, gives this Plant the Name of a Tree; but at the same time owns he had never seen it.

Parkinson compares it to the Prickle Timber, or Prickwood Tree, which he takes to be the *Euonymus* of *Alpinus*.

Banefius, in the first Treatise that was ever publish'd expressly on Coffee, 1671, is likewise the first whom I find to have call'd this Plant a Shrub or Bush; which are the Names he constantly gives it thro' his whole Book. And as he has likewise quoted *Alpinus's* Account of it, the *English* Translator thinks fit to add, by way of Note, that the *Euonymus* is by our Botanists term'd the Spindle Tree, or Prickwood; but it is believ'd (says he, without telling us by whom, or for what Reason) that it is not *Alpinus's* *Euonymus*.

Chabræus, in his *Seiographia Stirpium*, 1678, joins with the other Authors in calling the Coffee Plant a Tree; but it is meerly upon the Authority of *Alpinus*, who indeed is the only Person, during all this time, that appears to have ever seen it; for *Banefius* no where says that he did; and the rest either frankly own they never did, or say nothing about the Plant at all.

Mons. Bernier has something new upon this Head, but we shall see presently, from *Mons. La Roque*, that he has been very ill inform'd. 'I cannot tell you (says he to *Mons. Du Four*, in a Letter publish'd with that Author's Treatise on Coffee) 'whether
' Coffee be a kind of Bean, which is sown every Year as we do
' ours, or the Fruit of some Shrub; I find nothing upon that
' Head in my Journals; but what I can assure you of is, that
' it must be a Species of *Convolvulus*, because I remember perfectly well to have been told that it is always planted near the
' *Mouzé*, to which it clings, and so supports its self.' This

Mouzé

Mouzé is what the *Portuguese* call *Adam's Fig Tree*, because of the Largeness of its Leaves.

It is no Wonder that this Account startled Dr. *Robinson*, and that, having nothing but *Alpinus* and his own Observations on the dry'd Coffee Fruit to be guided by, he was at a Loss what to make of it. ' *M. Bernier*, who pass'd the *Red Sea* into *Arabia*, (says the Doctor to Mr. *Ray*, in a Letter publish'd not long ago by Mr. *Derham*) ' doth affirm, That the *Arabs* assured him that ' the Coffee Fruit was sown every Year, under Trees, upon which ' it did climb and run. From which he concludes it to be a ' Species of *Convolvulus*. I think he might as well have concluded it to be a *Phaseolus*, or some other scandent Legume— ' If *M. Bernier* was truly inform'd of its annual sowing and climbing, then *Alpinus* never saw the true Coffee Plant— I have examin'd many Coffee Berries, as they call them, here in *London*, ' and am almost persuaded by my own Observation that they are ' neither Berries nor the Seeds of any *Convolvulus*, nor of any ' Legume, but are rather of the Nut Kind.

Du Four's Treatise of Coffee was printed in 1683, and in the Beginning thereof he terms the Coffee a Legume, or kind of foreign Bean; but when he talks of the Plant it self, he is not altogether against its being called a Tree, tho' he inclines more to rank it among the Shrubs. ' The Tree that produces the Coffee (says he) ' is like the *Euonymus* or Spindle Tree (*Eufain* in French) ' which bears the Seed we call *Bonnet de Pretre*, as we are inform'd ' by *Alpinus*, who saw it in his Travels. In the Memoirs which ' I have received from the *Levant*, it is compared to our middling ' Sort of Cherry Trees, both in Leaves, Branches and Size, for ' at most it is but a Shrub.

Blegny compares the Trunk of the Coffee Plant to a common Bean Stalk. What led him into this Mistake was his looking on the Branch delineated by *Alpinus*, to be the whole Plant.

As *Du Four's* Book was the latest, and, as Mr. *Ray* owns, the best that he had heard of about Coffee, when the second Tome of his *History of Plants* came out, we need not be surpriz'd to find that he imitates him in calling it a Shrub.

In this, and in nothing else, he is followed by the Worthy and Learned Sir *Hans Sloan*, whose Account of this Plant, publish'd in the *Philos. Transact.* N° 208, is by far the most exact that had till then appear'd.

Mr. *Dale*, in his *Pharmacologia*, 1710, ventures to dissent from Mr. *Ray* in this Particular, and calls the Coffee Plant a Tree. This was certainly not the Effect of any Knowledge he had of the Plant,

Plant, for in the very next Line he tells us it is *Arbor prægrandis*, a Tree of an extraordinary Size; and compares it to the *Tilia*, or Lime Tree.

Dr. *Salmon* agrees with *Dale* in calling the Coffee Plant a Tree; but instead of the *prægrandis* of that Author, he says it is but a very little Tree.

Sir *Thomas Pope Blount*, in his *Natural History*, 1693, takes Notice (from *Du Four* I suppose) of the Resemblance of it to the Cherry Tree, except that it is scarce so big.

Dr. *Pechey*, in his *Compleat Herbal*, 1694, calls it a little Tree; but rather than to say he copy'd Dr. *Salmon*, I shall suppose he translated the *Arbusculum* of Mr. *Ray*.

Pomet, after finding Fault with *Blegny*, tho' without naming him, tells us, (*Histoire des Drogues*, 1694,) that for his Part, he rather inclines to *J. Baubinus's* Opinion, that it is like the Spindle Tree. How can this Author have ever read *J. B.* and not see that he copies *Alpinus*?

Herman acquaints us, in his *Posthumous Treatise* of the *Materia Medica*, publish'd 1710, that the Coffee Trees grow in *Arabia Felix*, and that they are as big as Lime Trees. As this Book was handed about in Manuscript long before it was printed, it was from thence, perhaps, that *Dale* got this Comparison.

The two *Lemerys* stick by *J. B.* and only refer to him for a farther Account of this Plant.

It is hard to tell upon what *Langius* founded the Resemblance, when, in his *Materia Medica*, 1704, he compared the Coffee Plant to the *Filix*; or how, after such a Comparison, he should still call it a Tree.

Tournefort has no where mention'd this Plant, but in a *Posthumous Treatise* of the *Materia Medica*; and even there he has only copy'd *Du Four*.

Chomel, in his *Plantes Usuelles*, 1712, and *Andry*, in his *Alimens du Carême*, 1713, call it simply a Tree which grows in *Arabia Felix*.

Valentini, in the *Latin Edition* of his *Materia Medica*, publish'd in 1716, tells us it is an exotick Tree as big as the Lime Tree.

C. Commelinus is the first who has been at Pains to examine this Plant with a View to discover the Family it belongs to; for neither *Morison* nor *Tournefort* in his *Institutions*, have so much as mention'd it; and the Way that Mr. *Ray* has class'd it is only by Guess. According to this Author, the Coffee Plant is a Species of *Jessamin*; and *Volkamerus*, in the *Acad. Cesar. Leopold. Ephem. Obs.* 168. adds, that it is of the *Bacciferous* Kind.

Mouzé is what the *Portuguese* call *Adam's Fig Tree*, because of the Largeness of its Leaves.

It is no Wonder that this Account startled *Dr. Robinson*, and that, having nothing but *Alpinus* and his own Observations on the dry'd Coffee Fruit to be guided by, he was at a Loss what to make of it. ' *M. Bernier*, who pass'd the *Red Sea* into *Arabia*, (says the Doctor to *Mr. Ray*, in a Letter publish'd not long ago by *Mr. Derham*) ' doth affirm, That the *Arabs* assured him that ' the Coffee Fruit was sown every Year, under Trees, upon which ' it did climb and run. From which he concludes it to be a ' Species of *Convolvulus*. I think he might as well have concluded it to be a *Phaseolus*, or some other scandent Legume— ' If *M. Bernier* was truly inform'd of its annual sowing and climbing, then *Alpinus* never saw the true Coffee Plant— I have examined many Coffee Berries, as they call them, here in *London*, ' and am almost persuaded by my own Observation that they are ' neither Berries nor the Seeds of any *Convolvulus*, nor of any ' Legume, but are rather of the Nut Kind.

Du Four's Treatise of Coffee was printed in 1683, and in the Beginning thereof he terms the Coffee a Legume, or kind of foreign Bean; but when he talks of the Plant it self, he is not altogether against its being called a Tree, tho' he inclines more to rank it among the Shrubs. ' The Tree that produces the Coffee (says he) ' is like the *Euonymus* or Spindle Tree (*Fusain* in French) ' which bears the Seed we call *Bonnet de Pretre*, as we are inform'd ' by *Alpinus*, who saw it in his Travels. In the Memoirs which ' I have received from the *Levant*, it is compared to our middling ' Sort of Cherry Trees, both in Leaves, Branches and Size, for ' at most it is but a Shrub.

Blegny compares the Trunk of the Coffee Plant to a common Bean Stalk. What led him into this Mistake was his looking on the Branch delineated by *Alpinus*, to be the whole Plant.

As *Du Four's* Book was the latest, and, as *Mr. Ray* owns, the best that he had heard of about Coffee, when the second Tome of his *History of Plants* came out, we need not be surpriz'd to find that he imitates him in calling it a Shrub.

In this, and in nothing else, he is followed by the Worthy and Learned *Sir Hans Sloan*, whose Account of this Plant, publish'd in the *Philos. Transact.* N° 208, is by far the most exact that had till then appear'd.

Mr. Dale, in his *Pharmacologia*, 1710, ventures to dissent from *Mr. Ray* in this Particular, and calls the Coffee Plant a Tree. This was certainly not the Effect of any Knowledge he had of the Plant,

Plant, for in the very next Line he tells us it is *Arbor prægrandis*, a Tree of an extraordinary Size; and compares it to the *Tilia*, or Lime Tree.

Dr. *Salmon* agrees with *Dale* in calling the Coffee Plant a Tree; but instead of the *prægrandis* of that Author, he says it is but a very little Tree.

Sir *Thomas Pope Blount*, in his Natural History, 1693, takes Notice (from *Du Four* I suppose) of the Resemblance of it to the Cherry Tree, except that it is scarce so big.

Dr. *Pechey*, in his *Compleat Herbal*, 1694, calls it a little Tree; but rather than to say he copy'd Dr. *Salmon*, I shall suppose he translated the *Arbusculum* of Mr. *Ray*.

Pomet, after finding Fault with *Blegny*, tho' without naming him, tells us, (*Histoire des Drogues*, 1694,) that for his Part, he rather inclines to *J. Bauhinus*'s Opinion, that it is like the Spindle Tree. How can this Author have ever read *J. B.* and not see that he copies *Alpinus*?

Herman acquaints us, in his Posthumous Treatise of the *Materia Medica*, publish'd 1710, that the Coffee Trees grow in *Arabia Felix*, and that they are as big as Lime Trees. As this Book was handed about in Manuscript long before it was printed, it was from thence, perhaps, that *Dale* got this Comparison.

The two *Lemerys* stick by *J. B.* and only refer to him for a farther Account of this Plant.

It is hard to tell upon what *Langius* founded the Resemblance, when, in his *Materia Medica*, 1704, he compared the Coffee Plant to the *Filix*; or how, after such a Comparison, he should still call it a Tree.

Tournefort has no where mention'd this Plant, but in a Posthumous Treatise of the *Materia Medica*; and even there he has only copy'd *Du Four*.

Chomel, in his *Plantes Usuelles*, 1712, and *Andry*, in his *Alimens du Carême*, 1713, call it simply a Tree which grows in *Arabia Felix*.

Valentini, in the Latin Edition of his *Materia Medica*, publish'd in 1716, tells us it is an exotick Tree as big as the Lime Tree.

C. Commelinus is the first who has been at Pains to examine this Plant with a View to discover the Family it belongs to; for neither *Morison* nor *Tournefort* in his Institutions, have so much as mention'd it; and the Way that Mr. *Ray* has class'd it is only by Guess. According to this Author, the Coffee Plant is a Species of Jessamin; and *Volkamerus*, in the *Acad. Cæsar. Leopold. Ephem. Obs.* 168. adds, that it is of the *Bacciferous* Kind.

Messieurs *La Roque* and *De Jussieu* have given us so exact and compleat a Description of this Plant, that they had no Occasion to compare it to any other, as a Mean to convey a better Idea of it; and after what they have said there can no more Difficulty remain whether it ought to be ranked among the Trees or Shrubs. *La Roque* adds, *en passant*, that when at its full Growth it is not unlike an Apple Tree. But what we have principally to remark from this Author's Account, is an Observation which lets us into the Reason of *M. Bernier's* Mistake, and clears up the Difficulty which *Dr. Robinson* was in about it. ' If our Travellers, says *Monf. La Roque*, ' had not made this Journey to *Mouab* (the ' City where the King of *Yemen* then resided) we should perhaps ' have long remain'd ignorant of one Singularity about the ' Coffee Trees, of which no Body has hitherto taken Notice; ' and that is, that in Places very much expos'd to the South, ' or which lie too open, these Plants are set under great Trees, ' which they say appear'd like a kind of Poplars, and they serve ' to shade and defend the others from the excessive Heat of the ' Sun. The Inhabitants are persuaded that without this Canopy ' the Flowers would soon be burnt up, and no Fruit ever appear; ' and our Travellers saw some Instances of this in other Trees ' which had not the Advantage of a Shade. They observ'd this ' in the first Coffee Trees they met with in their Journey: It was ' in a Plain near the City of *Tagus*, which is very much expos'd. ' The Poplars stood at certain Distances all over the Plantation, ' and each of them shaded a good Number of Coffee Trees regularly planted for that Purpose, much after the Manner that ' Apple Trees are in *Normandy*. In other Places which do not ' lie so open there are none of these Trees to be seen, the Coffee ' Plants thriving well enough there without a Shade.

Thus far *Monf. La Roque*. And these were undoubtedly the great Trees which *Bernier* had been told of; for which he could imagine no other Use than that they supported the Coffee Plants, as others do the *Convulvuli*.

Professor Boerhaave agrees in every thing with *Commelinus*. It was sufficient for the Design of his Index, publish'd in 1720, to name and class this Plant as he had found it done by any good Author before him.

According to *Mr. Joseph Miller*, in his late *Botanicum Officinale*, the Coffee Plant seems to be neither Tree nor Shrub, but something between both; which he expresses by calling it a *shrubby Tree*. He is likewise afraid to make it a Species of *Jasmin*, but says only, that it is so according to *Commelinus*.

Mr. *Bradley* is as positive on the other hand, that *Commelinus* was in the right; and assures us that every Day confirms him more and more that it is of that Tribe.

In this Manner have Botanical Writers talk'd concerning the Coffee Plant in general; and if we look back on all that has here been quoted from them, we shall find,

1. That of all the Authors who have said any thing upon this Subject, the greatest Part are agreed that this Plant is truly and properly a Tree, and ought to be reckon'd such.

2. That of the remaining Authors, *Banefius*, Mr. *Ray*, and Sir *Hans Sloane*, think it is properly a Shrub; *Du Four*, that it may be reckon'd either a Tree or Shrub; *Miller*, that it is neither the one nor the other, but a shrubby Tree; *Figueroa*, that it is an Herb; *Langius*, that it is both Herb and Tree; and *Bernier* is altogether undetermin'd about it.

3. The other Plants it has been compar'd to, and the Authors of these Comparisons, are the following,

Euonymus,	<i>Alpin.</i>
Prickle Timber Tree,	<i>Parkinsf.</i>
Convolvulus,	<i>Bernier.</i>
Cherry Tree,	<i>Du Four.</i>
Common Bean,	<i>Blegny.</i>
<i>Tilia</i> , or Lime Tree,	<i>Dale.</i>
<i>Filix</i> , or Fearn,	<i>Lang.</i>
Jessamin,	<i>Commelin.</i>
Apple Tree,	<i>La Roque.</i>

C H A P. V.

The Root, Trunk and Branches of the Coffee Plant.

THO' the Coffee Tree is now to be found in many Gardens about *London*, it has been my Misfortune as yet never to have had a full Opportunity of examining these Parts of it which make the Subject of this Article. I shall, however, venture to communicate the few Observations I have hitherto been able to make about them; leaving a more perfect Description of them to be supply'd by some other Hand, in case I should never be in a Condition to do it my self.

The Coffee Fruit being planted in a convenient Soil, the first Part of the succeeding Tree which appears above Ground, is the seminal Leaves; and as soon as they are spread, the tender Stem may be perceived to sprout out betwixt them tip'd with two other Leaves of the same Kind with those that always remain on the Plant. From between these, another Portion of the Stalk may in a little time afterwards be perceived to shoot, crown'd likewise with a new Pair of Leaves lying in a Plain which cuts the former at right Angles; and in this manner the tender Trunk advances.

How long it is before the first Branches begin to appear, I cannot certainly tell; I saw a young Plant in Mr. *Sherrard's* Garden, seven Inches high, bearing five Pair of Leaves, besides the seminal ones, without any Vestige of Branches. But when they do arise, their Manner of Growth is much the same with that of the Trunk. They come out in cross Pairs from the *Axe* of the above-mention'd Leaves, and all of them make acute Angles with the Stem, those nearest the Top being most inclined.

Neither is the Descent of the Root, in all Appearance, much different from the Ascent of the Trunk and Branches; for in a very small Plant which I had the good Fortune to get with the Root entire, I observ'd it to run down for a good way pretty strait, and that afterwards it bent several Ways, very long Fibres arising from it thro' its whole Length, most of them standing the same Way as the Branches do on the Trunk, only much more numerous, and, as far as I could find, in a Position not always exactly regular. As the Plant grows up, some of the Fibres
which

which lie nearest the Surface of the Earth become equal to the main Body of the Root in Thickness, and send out other small ones in the same Plenty; and in this Manner it spreads to a considerable Breadth as well as Depth, these several *Digitæ* shooting out different Ways, and at different Angles with the Horizon. This is all that I could with Certainty discover in another pretty large Root sent me by a Friend; but which by Misfortune had been cut and mangled when dug up.

To what Height and Thickness these Plants will grow with us, cannot as yet be determin'd, there being none, as far as I know, in *England* which have reach'd their utmost Limits of Increase. Mr. *Parker* of *Heling* has one which last Summer was full five Feet above Ground; the Circumference, near the Root, was three Inches, and from thence it rises gently tapering, the Top being no thicker than a small Branch. At the going off of each Branch there is a considerable *Nodus*, especially near the Top, but the Joints below each of them are always bigger than those above them. In this Plant I counted eighteen Pair of Branches; the longest, which was in the third or fourth Row from the Ground, measuring eighteen Inches in Length, and three quarters of an Inch in Circumference.

The *Cortex* or Bark of this Plant is pretty thick, and may be plainly discern'd to be made up of two Parts, cas'd over one another; the outermost of which seems to me to fall off from the Trunk and greater Branches, which makes these appear of a lighter Ash Colour than the rest; the upper Covering of the Bark being several Degrees darker than the other.

The Wood is pliant and flexible, of a much whiter Colour than any Part of the Bark, and specifically lighter than most other Trees. This becomes the more remarkable, because the Pith is but of a very moderate Size.

What has here been said about the *Cortex* and Wood of this Plant, agrees equally to the Root and Trunk, at least as far as I have hitherto been able to observe.

I shall conclude this Account with the following Observations communicated to me by that ingenious Gardiner Mr. *Philip Miller*, concerning the Coffee Trees which were lately sent from *Barbadoes* to His Royal Highness the Prince. The Height of them from the Surface of the Ground was, in *September* last, fifty two Inches. Each Tree hath thirty two Branches, which come out by Pairs, opposite to each other. The lowermost Branches were twenty five Inches long, and so decreasing in Length to the uppermost, which was three Inches long; and all together they form a handsome Pyramid.

The Stem of the Tree next the Surface is three Inches in Girt, and at the Top an Inch and three quarters.

The Root spreads nineteen Inches Diameter, and is very full of small Roots. The larger Roots were of a dark brown Colour; but the *Fibrillæ* very white, and pretty tough; and when broken they smell very like Liquorice, but have little or no Taste. The whole Root is so ramify'd, and each Ramification so full of *Fibrillæ*, that it looks like a shockey Head of Hair; and it was very difficult to clear them of the Earth.

In no Author, that I have yet met with, is there so much as one Word about the Root of the Coffee Plant. *Pomel* indeed tells us of one that was eaten by the Rats, near *Paris*; but besides that this Story is in all Probability false, we are as far to seek about the Description of this Root as ever.

Of all the *Europeans* who have travelled into *Arabia Felix*, where the young Coffee Plants are every where transplanted at certain times of the Year, it is a Wonder that none has ever had the Curiosity, either by ocular Inspection, or at least from the Accounts of the Inhabitants, to inform himself what kind of Roots they have. And it is a much greater Wonder still, that during a Course of so many Years, in which there have been Plants sent to all Places, from the *Amsterdam* Garden, that no Botanist who has had an Opportunity of examining the Roots, has ever publish'd a Description of them.

The Trunk and Branches, having a nearer Relation to the Fruit, and being discoverable with much less Trouble than the Root, have not been so much neglected by Authors.

Alpinus has said nothing in particular about either of these; but supposing the Figure he has given us of a Branch to be in any measure like the Plant it was taken from, we may infer from thence, that it decreases very sensibly in Bigness, as it removes from the Trunk, till at Top it appears to be not much thicker than the Foot Stalks of the Leaves: That it is not quite strait, but gently bent two contrary Ways in form of an *Italian f*; and that there are three lesser Branches arising from it, the uppermost about the Middle, and all of the same Figure with it.

From this Time, all the Way down to *Mons. Du Four*, we meet with nothing but repeated Copies of *Alpinus's* Figure, without any Description; and even this Author has only told us that the Branches are small and limber; referring for all the other Particulars about them, as well as about the Trunk,

to the Figure placed at the Beginning of his Book; which is only a good Copy of that of *Alpinus*.

Sir *Hans Sloane's* Figure is likewise taken from a Branch, and differs extremely from all that ever I have seen in the Number and Disposition of the smaller Twigs that arise from it.

About the Description of it, the Author tells us that it was taken from a Tree seven or eight Foot high; that the Branch it self was five Foot long, and cover'd with a grey almost smooth Bark. The Wood is white, and the Pith not very large. The Twigs are cover'd with a darker colour'd very smooth Bark, and arise opposite to one another by Pairs, standing cross to one another, coming out of opposite Sides of the Branch, or the two Pairs next to one another, cutting each other at right Angles.

The Branch from whence this Description is taken, was dried; but nevertheless, he says, it will every way agree to those of a growing Tree; *Mr. Clyves*, who brought it to *England*, having inform'd him of every Particular of it.

Mons. De Jussieu tells us, that in the Year 1715, the Coffee Tree in the Royal Garden at *Paris* was about five foot long, and the Trunk as thick as a Man's Thumb. The Branches arise at certain Distances, always in Pairs crossing one another: They are very limber, round, knotted and cover'd, as well as the Trunk, with a very thin white Bark. The Wood of them is pretty hard, and of a sweet Taste. The lower Branches are commonly simple, and arise more horizontally than the upper ones, in which the Trunk ends, and which are subdivided into lesser Twigs springing from the *Axe* of the Leaves in the same Order.

Valentini refers to the Count *Marsigli* for an Account of this Tree, and has only copy'd one of the Figures of that Author.

Mons. La Roque, from Informations taken in *Arabia Felix*, informs us that the Tree which bears Coffee is from six to twelve Feet in Height, and from ten to fifteen Inches

Inches in Circumference.. When in Perfection it looks not unlike an Apple Tree eight or ten Years old. In an aged Tree the lower Branches are ordinarily bent; and at the same time they spread themselves all round the Trunk, and so form a Sort of Umbrella. The Wood is very tender, and withal so pliable, that the Extremities even of the highest Branches may be brought within a Foot or two of the Ground without breaking. The Bark is of a whitish grey Colour, and the Surface of it somewhat uneven.

Concerning two other Trees which this Author saw in the Royal Garden at *Paris*, he observes that one of them was only about a Foot and an half high; the other, then just arriv'd from *Holland*, was about five Feet in Length, and an Inch in Diameter. Little Branches arose all along the Stem, and taken all together they form'd almost the Figure of a Pyramid.

Mr. *Bradley* has been at Pains to examine and delineate the Coffee Trees that grew in the *Amsterdam* Garden. His Figure,

however, is only that of a Branch, which he tells us resembles in every Point that he took it from, except only the Size, which ought to be one third bigger to make it equal with the Life. About the Trunk or Branches of this Tree he has said nothing, further than that it is of a very quick Growth, and naturally inclinable to shoot upwards; that in its native Country it generally attains, as is reported, the Height of forty or fifty Feet, altho' the Stem, in the thickest Part, does not exceed five Inches in Diameter. He adds, That in the Garden of *Amsterdam* there were two Coffee Trees about seventeen Foot high when he saw them.

As this excessive Height ascribed to the Coffee Trees by Mr. *Bradley*, is only upon the Testimony of other People, it ought to be of no Force against the Truth of the Memoirs furnish'd to *Monf. La Roque* upon that Subject; and I am even afraid Mr. *Bradley* did not accurately measure those he saw at *Amsterdam*.

C H A P. VI.

The Leaves of the Coffee Plant.

THE Leaves of the Coffee Plant terminate both Ways in a narrow Point, and from thence are expanded on both Sides in the Figure of a Curve Line, so as that the broadest Part of them is commonly about the Middle of their Length. Their regular Figure is to have this Curve Line similar, an equal Part of the Leaf lying on both Sides the *Costa* or Rib. They are not all, however, of this Shape, and the Variations from it consist either in that the same Parts of the Leaf are not equally broad on each Side of the *Costa*; or that the Extremities of them are laterally bent or incurvated; both these admitting of many different Degrees.

The Length of the largest Leaf which I had ever an Opportunity of measuring was nearly seven Inches; the greatest Breadth two Inches and three quarters. The whole Circumference can seldom be exactly measured in a large Leaf, because the Edges are most commonly undulated; but as near as I can guess from the Largeness of the Undulations of the Leaf I have now before

me, the Circumference of it is between seventeen and eighteen Inches.

Thro' the Middle of each Leaf lengthwise runs a strong *Costa* or Rib, rising above the Surface on both Sides, but most on the lower or back Side. It decreases in Thickness as it advances towards the Extremity, being thickest near the Branch to which it is fixed; and as during a small Space from thence the Leaf is extremely narrow on both Sides, that Part has been taken for a *Pedunculus* or Foot Stalk; and in the Leaf I have here given the Dimensions of, it is about half an Inch in Length.

From each Side of the *Costa* arise a great many Fibres of different Sizes, the largest being parallel to one another, and inclined obliquely towards the End of the Leaf. The others are spread irregularly thro' the Pulp of the Leaf, which is pretty hard and solid, tho' not very thick.

The Surface and Edges of young Leaves are smooth and even, except where Risings are form'd by the *Costa* and large Fibres; but as they increase, the Edges become commonly pinched, the rest of the Leaf undulated or wav'd in many different Manners, bending likewise sometimes both according to the Length and according to the Breadth.

The Leaves while fresh are all pretty much of the same Colour, the upper Side being of a deep grassy green, the under Side lighter by a good many Degrees.

Hitherto we have consider'd the Leaves by themselves; the next Step is to examine them on the Plant. From the time that the Trunk appears above Ground, till the Branches are shot out, Leaves grow upon it in the same Order as the Branches do afterwards. In a young Plant only seven Inches high, I counted five Pair, besides the feminal ones, and the largest of them was four Inches in Length. These feminal Leaves differ from the rest in Shape, being more nearly circular, and adhering to the Stem by the Sides, rather than by one End. Some Leaves are found on the Trunk, even after the Branches are out, in all Ages of the Tree, and they grow always close by the Root of a Branch, but without being pair'd as before.

Two very tender Leaves are always found at the Top of the Trunk, join'd to a small short Foot Stalk, arising from between the Pair immediately below them. This Foot Stalk increases and becomes a new Joint or *Internodium* of the Trunk; but before it has gain'd any considerable Length or Strength, a new one tip'd with other two Leaves shoots out from its Top, betwixt the two Leaves placed there. In this manner the Tree increases in
Height;

Height; and the Growth of the Branches is perform'd in the same manner.

On these all the other Leaves are to be found. They arise from the *Nodi* already mention'd in an opposite Situation to one another; that is, one on each Side; but they are all in the same Plain, in which they differ from those of the Trunk; and in their natural Situation, before they come to be bent and distorted, both Edges are at an equal Distance from the Horizon. The Number of Leaves on each Branch, is, I believe, pretty nearly proportionable to the Length of the Branches. On one, which measured eighteen Inches, there were sixteen Pair of Leaves, but the Distance between each Pair is not always the same.

The Size of the Leaves on the same Branch is still more different; neither are the largest always nearest the Trunk, but indifferently on any other Part of the Branch; and it is certain that all of them do not arrive at the same Dimensions before they decay. The first Sign of that is a Change of the Colour from Green to a light Yellow towards the Top; from thence it spreads over the whole Leaf, and to that a brownish Colour succeeds, but not till that Part of the Leaf where it is found is quite dry'd and wasted. The Time when this happens, with respect to every single Leaf, is not long after it has grown to its full Extent; tho' I am apt to think that their being so closely pent up in Stoves may contribute something to the Shortness of their Duration; the Plant it self, nevertheless, is undoubtedly an Ever-green; and I believe there is very little Difference to be observed in the Number of green Leaves in any Season of the Year; but whether, or in what time young ones grow out from the same *Nodus* from whence the old ones fell, I have not had an Opportunity of observing.

Alpinus has only observ'd about the Leaves of this Plant, that they are thicker, harder and greener than those of the *Eucalyptus*, and that they remain always green (*perpetuo virentia*): This last, as we have heard, must be meant of the whole Plant, not of any single Leaf. In his Figure the Shape of the Leaves is very ill represented; but the Manner in which they arise from the Branches tolerably well, if we except the crossing.

Mons. *Du Four* observes further, That they are not very large, but pretty thick, in proportion to their Extent; that they are intire, or without Incisures; and that in every respect they are very much like those of a middling Cherry Tree. He takes Notice likewise that this Plant is an Ever-

green, but however that the Leaves decay and fall off very soon, the Fruit remaining naked and expos'd upon the Tree. This Description is meant of the Coffee Leaves in *Arabis Felix*, none of which Mons. *Du Four* ever saw; and therefore the Inaccuracy of it is to be imputed not so much to him as to those from whom he had his Informations.

Sir *Hans Sloane* is the first who has express'd the Manner in which these Leaves arise from the Branches; and he has likewise added several new Observations about them. ' After the same manner, says he, ' stand the Leaves on the Twigs, as the ' Twigs on the Branches, at some times an ' Inch, sometimes two Inches Distance, ' each Pair of Leaves from the other. The

Leaves have $\frac{1}{4}$ Inch Foot Stalks, being about four Inches long, and two broad in the Middle where broadest, whence they decrease to both Extremes ending in a Point. They are smooth, whole, without Incisures on their Edges, somewhat like the Leaves of a Bay. When we consider that this Author had only the Leaves of one dry'd Branch to take this Description from, it must be own'd that he has examin'd this Part of it with great Accuracy; and as for the Comparison he makes of these Leaves to those of a Bay, it is at least as just as any that have hitherto been pitch'd upon; especially while the Leaves are small and not curled.

Commelinus, and after him *Volkamerus* and others, compare these Leaves to those of the *Castanea* or Chestnut Tree. It must be own'd, that from a transient View of what the Gardiners call the *Spanish* Chestnut Leaves, one would be apt to think that they resembled the large ones of our Plant very much; but upon a more strict Examination, I find them to differ extremely. The Chestnut Leaves are much narrower in proportion to their Length; the large Fibres much thicker set, arising higher on the backside of the Leaf, and much more distinctly continued to the Edges; the Edges are pretty deeply crenated, and the Interstices between the Notches end in strong sharp Prickles or Thorns; the Undulations are not near so large, and quite otherwise disposed; in fine, tho' this does not relate to the Make of the Leaf, those of the Chestnut do not arise in Pairs from the Branches, nor in the same Plain with one another.

Tournefort has nothing new about the Coffee Leaves; 'They arise, says he, in Pairs oppos'd to one another, being of an oval Figure, but ending in a small Point.

M. Bradley tells us that the Leaves are bi-composite, or set in cross Pairs at the Joints, and not unlike those of the common Bay, but curled at the Edges, and inclinable to hang down. And in the second Edition he inclines rather with his learned Friend *Mr. Pettiver*, to think the Leaves like those

of the *Laurus Vulgaris*, than to compare it to those of our common Chestnut; but in all the Editions of his new Improvements, even those publish'd since his last Treatise of Coffee, he inclines to the common Chestnut again.

I need not take notice of the Defectiveness of what *Mr. Bradley* has told us about this Part of the Plant; but I cannot help remarking his Mistake about the Situation of the Leaves upon the Branches: They are never set in cross Pairs, but lie all in the same Plain; and on the Trunk, except before the Branches sprout out, they are seldom in Pairs at all. So that with respect to neither of these will *Mr. Bradley's* Account of the Situation of the Leaves be found to hold.

Monf. De Jussieu's Description is in these Words: 'Both Sorts of Branches are always cover'd with Leaves, intire and without Incisures in their Circumference, small and pointed at the two Ends, oppos'd by Pairs, but without crossing one another as the Branches do, and arising from the *Nodi* of these. They resemble very much the Leaves of the common Bay, but are not so dry nor thick, tho' larger and more pointed; their Extremities inclining sometimes a little to one Side. The upper Surface of them is of a shining Green, the lower Side of a pale Green; and they are all yellowish at first. They are wav'd or curl'd at the Borders, which perhaps is owing to the Culture; and there is nothing aromack nor uncommon in their Taste. The biggest of them is about three Inches in Breadth, and four or five in Length, with short Foot Stalks join'd to them.

Monf. La Roque observes, 'that these Leaves are very like those of the Limon Tree, (*Citronier*) but not so much pointed; thinner, and of a darker green Colour. That the Branches are at no time altogether strip'd of Leaves; that they arise most commonly in Pairs from the two opposite Sides of the Branches, and all in the same Plain, at small Distances from one another.

C H A P. VII.

The Flower of the Coffee Plant.

THE Flower arises from the very Middle of the *Alæ foliorum*, or Juncture of the Leaves and Branches, by a small green *Pedunculus*, or Foot Stalk, which tho' not above the eighth Part of an Inch in Length, may nevertheless be plainly perceiv'd not to run in the same Plain with the Branches, but to be a little inclin'd upwards; and for that Reason the rest of the Flower appears to be situated not so much between the Leaf and Branch as above them both.

Round the Edges of the upper Extremity of the *Pedunculus*, arises the *Calix* or Cup of the Flower, and is presently after divided into four or five small Segments; two of which, commonly larger than the rest, we may observe to be of the same Texture and Shape with the Leaves of the Plant, and to run up a little way upon the tubulous Part of the *Petalum*, at a little Distance from it; for this Reason, and also because the Foot Stalk being so very short, it is not always easy to distinguish whether these Segments arise from it, or immediately from the *Alæ*; they might equally be suppos'd to be the Beginnings of new Leaves springing out with the Flower, only that they decay soon after it, leaving the Fruit naked. This evidently proves that they are all of the Nature of a *Calix*, the Use of which is to serve first for a *Perianthium*, before the Flower is quite blown, and afterwards to defend the tender *Ovarium*.

O V A R I U M.

This *Ovarium*, or Seed Vessel, is fix'd to the upper Extremity of the *Pedunculus* within the *Calix*; and consider'd in this State, that is, as making a Part of the Flower, it is only a small green Globule, in which nothing farther can with Certainty be distinguish'd, till after the Decay of the Flower. Then it begins to swell, and by degrees advances to a perfect Maturity, as we shall see in describing the Coffee Fruit.

P E T A L U M.

P E T A L U M.

From the Top of the Seed Vessel springs the *Petalum* of this Flower, by a tubulous Beginning, but it is afterwards parted most commonly into five Segments, sometimes into four or three only. The lower or tubulated Part is exactly in the Shape of the Neck of a common Funnel, being narrower at Bottom than at Top; and the Length of it is between a quarter and three eighth Parts of an Inch. The Segments do not run up from it in a strait Line, but go off almost at right Angles, and so form rather a *Discus*, than the upper Part of an *Infundibulum*, in the Sense assigned to these Terms by *Tournefort*. They are all pretty much of an equal Length in the same Flower, being commonly about half an Inch. Neither do they differ any other ways in Figure, save only that some of them continue of an equal Breadth thro' their whole Length, others begin, a little way from their Extremity, to contract by degrees. The Colour of both Parts and both Sides of the *Petalum* is the same, a very pure white; which however I have sometimes observ'd to be brighter in the Segments than in the *Tubulus*.

S T A M I N A.

The *Stamina* arise from the Inside of the lower Part of the *Petalum*, always equal in Number to the Segments thereof, of a white Colour, and a very small Size. Before they reach as high as the Origin of the Segments, they cease to adhere to the *Tubulus*, and run up a little way above it, being, as far as they are distinctly visible, never above three eighth Parts of an Inch in Length.

A P I C E S.

To each of the *Stamina* is join'd an *Apex* or Pendant, something longer than they are, and of a very different Figure. I know nothing they can be so justly compar'd to as the Claws of some small Birds; for they are crooked or bent fulcated on the concave Side, and bigger at Bottom than at Top. In this *Sulcus* the *Stamina* are fix'd, a little above the lower Extremity; so that these and the *Apices* have an oblique Situation, with respect to one another. All the convex Side of the *Apices* is of a whitish yellow Colour, the concave Side of a dark brown.

S T Y L U S.

S T Y L U S.

The *Stylus* is a long strait small white Tube, springing from the Middle of the upper Side of the *Ovarium* within the *Petalum*, thro' the hollow Part of which it ascends in the very Center of the *Stamina* and *Apices*. In this manner it runs up for near an Inch, and then the upper Extremity of it divides, and the two Portions of about a quarter of an Inch or sometimes more in Length, either both fall back in Form of a circular Arch or Hook, in an opposite Situation to one another, or one of them only; the other remaining strait, and then the whole appears not unlike a Water-man's Boat-hook.

Such is the Structure of a perfect Coffee Flower. The Progress of it comes next to be examin'd, from the time of its first Appearance, wholly inclos'd in the *Calix* or *Perianthium*, till it totally waists and decays. It is hardly ever distinctly visible till having broke thro' that Case, it shews it self in the Shape of a white round Blossom, the whole Flower being then wrapt up in that Manner. As it begins to unfold, the first thing we begin to discover further, is the forked Extremity of the *Stylus*, and the Explication of the whole Flower follows soon after, there being seldom above twenty four Hours between that and the Appearance of the white Blossom: The Decay of it comes on as fast; its Prime rarely out-lasting the Space of one Day. It continues for some time longer in a fading State, the *Petalum* turning insensibly brown; and afterwards this and all the other Parts of the Flower soon vanish and die.

We shall hear from Monf. *La Roque* what are the flowering Seasons of this Plant in *Arabia Felix*. I have never seen it flower here in *England* at any other time than between the End of *June* and Middle of *August*; tho' I doubt not but that some may appear after that Month is past.

Mr. *Ray* very justly complains that no Author had given any Account of the Flower of this Plant, at the time when he wrote; and *Langius*, even after the Plant it self had found its way to *Europe*, repeats the same Complaint, and had equal Reason for it; for till after his *Lectiones Materia Medica* was publish'd, I do not find so much as one Observation about this Flower, except one mention'd by *Strusius*, from an *Arabian* Physician, namely, that it is white.

The first Descriptions we have of it were

taken from the Plants in the *Amsterdam* Garden; and all Authors who have mention'd it agree that it is very much akin to the Flower of the *Jessamin*. From hence *Commelinus* deriv'd its Name; and he has likewise taken Notice of the Colour and Smell of the *Petala*.

That this Flower resembles that of the *Jessamin*, as much or more than any other, may be very true; but still there is a vast Disparity between them. In the *Jessamin* Flower the *Pedunculus* is twenty times longer, the united Part of the *Calix* much larger,

larger, and the Segments only small Filaments or *Lacinia*; the Seed Vessel is quite of a different Structure; the tubulated Part of the Flower bears a much greater Proportion to the Segments in Length, and the Colour of it is rather green than white; the Segments are differently shap'd, and the Number of them much more various and uncertain. In fine, the *Stamina*, *Apices* and *Stylus* have almost nothing in common in the two Flowers, save only that they are design'd for the same Ends.

Volkamerus had an Opportunity of examining this Flower in *Germany*, and he has observ'd about it, That it is of the perfect Kind; (in Opposition, I suppose, to those which Botanists term staminate Flowers, called by *M. Vaillant* incomplete, or imperfect;) that it is extremely beautiful, and of a strong and agreeable Smell; that it is of the monopetalous Kind, arising by a long Tube, and afterwards parted into five Segments; of a white Colour, and very large. Upon all which Accounts, and others likewise taken from the Fruit, he concludes that *Commelinus* was very much in the right to make it a Species of *Jeffamin*.

These Observations relate only to the *Petalum*; but *Mr. Bradley*, who knew very well that the other Parts of which Flowers consist are in a philosophical Sense the most essential Parts of them, has not suffer'd these to pass unregarded. 'The Flowers, says he, put forth in Clusters at the Joints, towards the Extremities of the Branches, and are in Figure, Size and Colour, the same with those of the common *Jeffamin*, with the Addition only of five yellow *Apices*, which hang loosely on the Top of the Flower, and a Style which projects near half an Inch above it. The Smell of the Flower, he adds, is faint, and not worth our Notice.

In his other Writings, he still insists upon the Likeness of this Flower to the *Jeffamin*; and in the latest of them he tells us, 'that every Day confirms him more and more that the Coffee Plant is of this Tribe.

About the Time of flowering he has likewise observ'd, that in the *Amsterdam* Garden it begins in *July*, and lasts till *October*.

Monf. De Jussieu describes the Flowers in this Manner: 'From the *Ale* of most of the Leaves arise the Flowers, sometimes five in Number, with short Footstalks. They are all white, of one Piece, and of equal Bigness, very much like to those of the *Spanish* *Jeffamin*, only that the Tube is shorter, and the Segments not so broad; the *Stamina* five in Number, whereas our *Jeffamins* have but two. These *Stamina* rise above the tubulous Part of the Flower, and surround a forked *Stylus* situated upon the Embryo of the Fruit or *Pistillum*, which lies within the *Calix*. The *Calix* is green, divided into four pointed Segments, the opposite Pairs of which are unequal in Size. These Flowers have a very pleasant Smell, but are of very short Duration.

La Roque, very much to the same Purpose, acquaints us that 'the Flowers are white, very like the *Jeffamin*, consisting of five little short Leaves (*feuilles*) their Smell is very agreeable, with something balsamick in it; but the Taste is bitter. They arise from the Place where the Footstalks of the Leaves are joined to the Branches.

'In almost all Seasons of the Year, continues this Author, 'there are Trees to be seen in Flower in *Arabia*; but in that Plant which he saw at *Paris*, some of the Flowers were in blossom only, others perfectly blown in the beginning of *September*.

C H A P. VIII.

The Coffee Fruit.

TO the Flowers of the Coffee Plant, succeeds the Fruit; which, as it is the only Part of the Plant that is used, will require to be treated at more Length than the rest. In order to do this with the greater Clearness, I have thought it convenient to throw all that I have to say upon this Subject into three distinct Articles; in the first of which I shall examine the whole outward Appearance and Coverings of the Fruit; in the second, the *Nuclei* or Kernels which these Coverings inclose; and in the third, the seminal Plant, or true Seed: And under each of these Heads I shall subjoin such a Part of the historical Remarks about the whole Fruit, as belongs to what is there treated. I should willingly have added a fourth Article, no less curious and entertaining than the rest, concerning the Progress of the Fruit from the Time that the Flower decays, and the *Vasculum feminale* begins to swell, till it arrives at a State of perfect Maturity, in which I here consider it; but in order to do that with all the Accuracy that is necessary, I must have destroy'd a great many more fresh Berries than I could possibly obtain in this Place. I have been obliged therefore to content my self with remarking the Changes that may be perceiv'd while the Fruit remains upon the Tree; and as these only regard the Size and Colour of the *Pericarpium* or Coverings of the fresh Fruit, I have set them down in the Article which is destin'd for these.

A R T. I.

The Coverings of the Coffee Fruit.

IN a fresh Berry these Coverings may in a proper Sense be term'd the *Pericarpium* of the Fruit; and therefore all that relates to the outward Appearance thereof can only be taken from this. The Situation of the Fruit upon the Trees, is the same with that of the Flower, to which it succeeds; only the Foot-Stalk shoots out by degrees to a greater Length, being, when the Fruit is ripe, above a quarter of an Inch long, its green Colour still continuing.

The

The Colour of the Fruit it self is at first green, which as it advances in Age and Size gradually changes, first to a red, and then passing from one degree of that Colour to another, becomes very dark by the time that the Fruit is ripe. In all States it is of an oval or spheroidical Figure, not unlike the *Cornelian* Cherry; and I never found the longest Diameter of it to measure much above half an Inch; nor the greatest Circumference above an Inch and an half. The transverse Diameter in these same Berries was about seven sixteenth Parts of an Inch; and the Circumference that way an Inch and three eighth Parts. The Weight of the whole about eight Grains.

The Pulp and Inside of the *Pericarpium* is of a light red Colour, but this last is variegated with many Streaks of white; even when the Fruit is come to Maturity; this Covering is not very thick, and there appear no Signs then of its being lined with any inner Membrane; the *Septum* by which the two Kernels are parted, is still mucilaginous; and both of them are cover'd with a thick Substance, of the same Kind out of which the first of the proper Coats is probably form'd by drying; the second being visible already.

These few Remarks concerning the Size, Appearance and Substance of the *Pericarpium*, are all which it is necessary to make about the fresh Fruit, as distinguish'd from the dry'd Berries. We shall see in another Place in what manner this is perform'd; and as the chief Design of it is that the Husks and Kernels may afterwards be easily separated; it is not often that we meet with many dry'd Berries intire in these Parts. I have however been at Pains to pick out a considerable Quantity from Bales of raw Coffee at the Drugsters, and some of them I found to contain two perfect Kernels in one common Husk, others one only; I say perfect Kernels, because even in those that are single, there are most commonly, if not always, some Remains of the abortive Kernel lying like a *Clypeus* or Target upon the other, as shall be explain'd more particularly afterwards. I have always observ'd, that the Number of such entire single Berries in each Bale exceeded the double ones; at a Medium of all the Tryals I made, the Proportion of them was nearly as seven to one. The Reason why we have any entire Berries at all imported can be no other than that they are smaller than the rest, and so escape the Roller which the *Arabians* make Use of to take off the Husks; and as there are fewer double Berries of that small Size than single ones, a greater Number of these must remain with the Husks on.

These

These two Sorts of Berries differ from one another in Figure; neither are all of each Kind entirely alike. The single ones are mostly of an oblong oval Figure, except where the Prominence form'd by the abortive Kernel makes a small Variation; the others, especially the smaller Sort, are more nearly round, with a sensible Depressure on both Sides, running from the Foot Stalk to the other End; and by these Marks it may be easily known whether a Berry be single or double, without taking off the Husk.

The Length of the single Berries I have always found between half an Inch and a quarter; the transverse Circumference from an Inch to five eighth Parts; and the Weight from five Grains to one. The double ones measur'd from three eighth Parts to a quarter of an Inch in Length; from an Inch and one eighth Part to something less than an Inch in Circumference; and weigh'd from four Grains to seven eighth Parts of one Grain; and by these Dimensions it appears that the double Berries may as easily miss the Roller as the single ones.

From this general View of the intire dry'd Berries, I go on to the *Coverings* in particular. These are always three in Number; one common to both Kernels, and two proper to each of them. The common and outermost Covering is only the *Pericarpium* dry'd; and in some Berries it is very much shrivell'd, wrinkly, uneven, and as it were furrow'd, being of a blackish or dark brown Colour. In others, especially the double Berries, it is smoother, and of a lighter shining brown.

The upper Extremity of this Covering, or that which is opposite to the Foot Stalk, terminates in an *Umbilicus*, as it is call'd by Mons. De Jussieu, which looks as if a circular Impression had been made upon it, with a pretty deep Hole in the Center thereof; this Circle is nothing but the Vestige of the tubulous Part of the Flower still remaining, as the Hole is of the *Stylus*; for upon that Part of the *Ovarium* they both stood.

Upon boiling, or long steeping in Water, this Coat becomes so soft that it may easily be scrap'd off; but if macerated only a little it grows thick, and may be taken off without being destroy'd, if cut in two equal Parts; and by so doing I have observed, that in many Berries it is considerably thicker near the *Umbilicus*, than in any other Part.

This *Involucrum* is always multicapsular, being divided most commonly into two Cells or *Loculamenta*, as Botanists express it; and sometimes, tho' very rarely, into three. The *Septum* or Partition by which these Cells are form'd, may here be very distinctly perceiv'd to be a thin fine Membrane, of a different Substance

from the outer Coat, and dividing the Cavity of it into two equal Parts, in each of which is lodged one Kernel, involv'd in its two proper Coverings. Thro' the Middle of it, lengthways, runs a Branch or *Fasciculus* of ligneous Fibres, continued probably from the Foot Stalk, and serving to convey Nourishment to the tender *Fœtus*. In examining the outer Coverings of some Berries, I have been often inclined to believe that the whole Cavity of them was lined with an inner Membrane, really distinct from the pulpy Part of the Coat; and perhaps this *Septum* may be only a Production or Elongation thereof, continued on both Sides to the *Fasciculus* of Fibres already mention'd: But whatever Way it be form'd, as it adheres inseparably to these Fibres it has all the Properties of a true Partition, and therefore the Seed Vessel it self is certainly *multicapsular*. In those I have for Distinction's sake call'd single Berries, this *Septum* is still to be seen between the abortive Kernel and the other; but then it no longer occupies the Middle of the Cavity, but is thrust out of its Place, and by that means very much impair'd.

The second Covering, or first of the proper Coats, may be truly reckon'd a *Cortex* or Shell, being very strong and hard, but withal very brittle; and, if I mistake not, the Consistence of it must be in a great measure owing to the drying of the Berries, for in all the fresh Berries I ever had an Opportunity of examining, it was soft and mucilaginous. I am surprized that they who contend that the Coffee Fruit is of the Nut Kind, as distinguish'd from a Berry, have not made use of this Coat to prove it. The Difficulty it self is indeed a meer trifling about Words; the Signification of these Terms *Nut* and *Berry*, being, as far as I can find, hitherto unsettled among Botanists.

Since this is a proper Coat, it must either be continued over the *Sulcus* or *Rima* in each Kernel, or terminate at both Sides, somewhere on the Edges of it. Which of these is true in fact, I cannot with Certainty determine; I am apt to imagine the last; and that therefore by means of this *Sulcus*, the Fibres in the *Septum* always placed opposite to it, may have some Communication with the Kernel it self, or at least with the inner Covering of it.

The Colour of this second or cortical Coat, is mostly that of a Limon, only a little more inclined to red, and the Figure of it always the same with the Kernel it incloses.

The third or innermost Covering, which because of its Colour may be call'd the Silver Coat, is made up of a very fine thin Membrane, surrounding not only the outside of the Kernel, but also

also the Process which lies in the Cavity of it, as shall be presently shewn. The two Sides of it enter the *Sulcus* of the Kernel, and there jointly form a double *Lamina*, which is from thence continued quite over the Process; and to that, as well as to the rest of the Kernel, this Coat adheres very close. I have never been able to distinguish either of these Coats in an abortive Kernel.

The most ancient Author by whom I find the Coffee Fruit mention'd, is *Ramwolfius*, who was in the *Levant* in 1573, and he has observ'd, that both in Bigness, Shape and Colour, it is like the Bay Berry. It is the dry'd Fruit *Ramwolfius* here talks of, and the Comparison he makes of these to the Bay Berries, is not much amiss, only these last are commonly larger than the entire Coffee Berries we meet with in these Parts. He adds, that the Fruit is surrounded by two thin Shells, which contain two Grains in two distinct Cells. These two Shells are probably the common and first of the outer Coats; which are all that have been taken Notice of by any Writer since his Time. What he has said about the two Cells is very indistinct, and yet it is more than has been said by any Body since.

Next to *Ramwolfius*, is *Prosper Alpinus*, who was in *Egypt* in 1580; what he has said about the Coffee Fruit is but very little, neither is it certain whether he means the entire Berry, or the Kernel only.

Clusius has observed upon this Subject, that the Coffee Fruit is small, yet something bigger and more oblong than that of the *Fagara*, with a kind of *Sulcus* running lengthwise on both Sides of it, being cover'd with a thin Cortex of a dark ash Colour.

Gerrard has done nothing but copy *Clusius's* Figures, which he has placed by Mistake among the *Indian* Fruits; and *Johnson*, in his Editions, has added *Clusius's* Text to his Figures.

J. B. tells us that this Fruit is hardly bigger than the Seeds of the *Ricinus*, of the Shape of an Olive, with a *Sulcus* or *Lacuna*, sometimes on one Side, sometimes on both. By this last can only be understood, that the Depressure is not always alike perceivable on both Sides of the Fruit. This Author has likewise taken notice that the Fruit consists of two Shells, whereof the outermost is thick and black; the other thin, and red on that Side which lies next the Kernel, on the upper Side of an ash Colour.

Petrus de la Valle says only, that the Grains of which Coffee is made are of an oval Figure, and about the Bigness of a

small Olive. And *Olearius* compares the Size of it to that of a small Bean.

Veslingius informs us of the Difference he had observ'd in *Egypt* between the Taste of the Coverings and that of the Kernel. The first, he says, is in some Degree acid; the other very sensibly bitter. This Distinction we need not be very solicitous about, for in however great Request the Shells may be in *Arabia Felix*, and the Countries which lie near it, on account of the Liquor there made of them, call'd by way of Excellency, *Café a la Sultane*; yet but a small Quantity of them ever comes into *Europe*, and before they get hither they have pretty much lost their Taste, and every other sensible Quality that is worth minding about them.

According to *Parkinson*, the Coffee Fruit is somewhat bigger than a hazel Nut, and longer, round also and pointed at one End, furrow'd also on both Sides, yet on one Side more conspicuously than on the other. He tells us likewise, that the outer Coat is a thin Shell of a darkish ash Colour, and the other he calls a yellowish Skin. All this shews plainly enough that *Parkinson* had seen the Coffee Fruit, but withal, that he had been at very little Pains to examine it.

Bauesius assures us, that the intire Fruit is something like the Cacao, but cleft along the Middle like a date Stone, and cover'd by a Shell or Husk.

Dr. Grew has said nothing about the Coffee Fruit in particular; but since, by what we shall see afterwards, he appears to have examin'd it very exactly; and has often declar'd, that in the far greatest Part of Seeds there are three *Involucra*, it is reasonable to suppose that all those I have describ'd were known to him.

Dr. Robinson, in his Letter to Mr. Ray, informs us that the intire Fruit is round on one Side, and flat on the other; but what we have principally to remark from this otherwise judicious Botanist, is the Manner in which he endeavours to prove that this Fruit is of the Nut Kind, in which I think he has come very far short of his usual Accuracy: The intire Fruit, says he, is cover'd with two Skins; the exterior Skin,

or rather Shell (being as thick almost as that of a *Pistachio*) is of a dark Colour; the second, or interior Membrane, that covers the Kernels is much finer, and of a yellowish white Colour. Under this second Skin lie generally two Kernels, sometimes one.

What Part of this Nut ought to be reckon'd the Kernel is easily determin'd: As for the Shell, I have already taken Notice, that the first of the proper Coats seems best to answer that: Dr. *Robinson* has chosen the common or outer Coat, and he is in the right to say it is almost as thick as that of the *Pistachoe*; but then, if I am not mistaken, it is not by virtue of that outer Coat that the *Pistachoe* is call'd a Nut, but on account of a hard Shell that lies under it, to which the outer Coat of the Coffee Fruit has no Resemblance, neither in Substance nor Situation. By what he says further, that under this second Skin lie generally two Kernels, it would seem that he look'd upon it not as a proper but as a common Coat, as much as the other; but how this can be, I do not so well understand, since not only each Kernel in particular is quite surrounded by this Coat; but being thus involv'd, is intirely separated from the other by means of the *Septum*. In fine, by the Date of this Letter it appears that it was written the Year before the second Volume of Mr. *Ray's History of Plants* was publish'd; and therefore it may seem strange, that after all the Pains this Author had been at, he should not have been able to persuade his Correspondent to rank his Coffee *Frutex* not among the bacciferous Plants, as he has done, but among the nuciferous. The Difference however lay, probably, in the Use of a Word only, Mr. *Ray's Arbores nucifera fructu per maturitatem sicco*, being, as he himself informs us, in every thing, except in Size, the same with the *Baccifera* of that kind.

What I have hitherto remark'd concerning the Resemblance of the Coffee Fruit to a Nut, must be understood of the dry Berries only; for in the fresh Fruit all the Coverings are so perfectly soft and pulpy, that they can in no Sense, neither singly nor together, be said to form a Shell. And whether a Fruit, which while it hangs upon the Tree is certainly not a Nut, can afterwards, by drying, be changed into one, I leave to those who are better vers'd than I in such Distinctions, to determine.

There is nothing but Repetitions to be met with in the other Authors, before the Year 1694, in which Sir *Hans Sloane* informs us that the Fruit comes out *ex alis foliorum*, hanging or sticking to the Twigs

by Inch-long Strings or Foot-Stalks; and sometimes one, two or more at the same Place.

Both *Lemerys* observe that this is a small longish Fruit, round like a *Pignon* (which I suppose to be the Seed of the *Ricinus Americanus*) and that the *Cortex* is a pretty hard ligneous Husk.

In *Tournefort's* posthumous Treatise of the *Materia Medica*, we are told that the Seeds are inclosed in Husks; for the most part consisting but of one Cell, sometimes of two. By this I suppose the Author means no more, than that for the most part each Husk contains but one Seed. This is true with respect to the intire Coffee Fruit that is imported into *Europe*: but with respect to all the Coffee Fruit produced in *Arabia Felix*, just the contrary is to be said.

Volkamerus, who had seen the Coffee Plant in a bearing State, tells us that the Fruit consists of two Kernels lying upon one another, included in a juicy *Pericarpium*; and from thence he concludes that the Plant it self ought to be ranked among the bacciferous Kind.

Mr. *Bradley*, in his first Treatise, observes, that 'about *October* these Trees have done blowing, and then they are commonly well set with green Fruit, which hang on them till the *July* following before they are ripe; they resemble at that time the Berries of the *Lauro Cerasus*, or Bay Cherry, and are much of the same Shape and Colour, (*i. e.* of a dark red) but instead of a single Stone, these have two Kernels which split in the Middle, like the Bay Berries of the Shops.' He has said nothing further about the Coffee Fruit in any of his later Works.

What belongs to this Article, from M. *De Jussieu* is, That 'the Embryo or young Fruit grows nearly to the Bigness of a Heart-Cherry, and is pretty much of the same Figure with it; but that when it is perfectly ripe and dry, it is reduced to the Size of a Laurel Berry. The Fruit ends in an *Umbilicus*, being at first of a light green Colour, then reddish; afterwards of a very beautiful red, and when perfectly ripe, of a dark red. The Pulp is glairous, or mucilaginous, of an unpleasant Taste, and when dried becomes like that of a black Prune. Under this Pulp lie two thin oval Coats, closely adhering together, convex on one Side, and flat on the other, by which they touch; and of a yellowish white Colour.

Monf. *La Roque*, much to the same Purpose, acquaints us, that 'to every Flower succeeds a small Fruit, but which by degrees

• grees grows to the Size of a large Cherry, in which State it is very good to eat. It adheres to the Tree by a small short Foot-Stalk, and when perfectly ripe is not much bigger than a Laurel Berry. It comes out between the Leaves and Branches. At first it is green, but grows red as it ripens; and the Sun having dry'd this red Pulp, it becomes a

• Husk of a dark brown Colour, which makes the first or outer Cortex of the Coffee Bean, and within it lies another thin Membrane, which makes the second or inner Cortex.

• M. Miller has only told us, that in the Coffee Plant the Flowers are succeeded by Berries, and that each Berry includes two Seeds in an inner thin Skin.

A R T. II.

The Kernels of the Coffee Fruit.

ALL the Coverings describ'd in the last Article being remov'd, the Kernel it self comes next to be examin'd; the Colour of which, to begin by that, varies according to the Freshness, Goodness, and Place of Growth of the Berry; some of them have a Cast of green, some are whitish, some dark or brown, and if damaged by salt Water, they are perfectly black.

The Figure of the Kernels varies likewise; but that is principally determin'd by the Number of them in the same Berry. The single ones, filling up the whole Cavity, have Liberty to extend themselves on all Sides, and consequently the Figure of them is that of a longish Oval, with a Cleft on one Side, upon which lies the abortive Kernel, as has been already said, in Form of a *Clypeus* or Target, very thin, and of a circular Figure, a little depress'd on one Side, to accommodate it self to the other. The double Kernels, for the same Reason, are nearly oblong Hemispheroids, being convex on the back Side, and flat on that by which they join one another; and in most of them it may be remark'd that they are a small matter bigger at one End than at the other. Thro' the Middle of the flat Side of each, runs a *Sulcus* or *Rima* lengthwise; generally narrower than that of the single Berries. The Figure of the triple Kernels is likewise to be determin'd by their Situation in the Seed Vessel; but of such I believe very few are to be found.

The far greatest Part of the Coffee that is imported into Europe, consists of such Kernels as have been double in the same Fruit, and the Dimensions and Weight of all the Kinds thereof may be guess'd at by those taken at a Medium from the Kernels that are brought us by the Way of Turkey, and those that come from Java in the East Indies. The greatest Length of the first Sort is three eighth Parts of an Inch, Breadth one eighth Part, and Weight three Grains. Of the Java Coffee I found the

N Length

Length to be half an Inch, Breadth five sixteenth Parts, and Weight five Grains and an half.

The principal Body of each Kernel consists of an hard, callous, cartilage-like uniform Substance, made up of two *Lamine*, first laid one upon another, and then rolled and folded up into the Figure we have just now describ'd. Whoever views a transverse Section of a Kernel, the first Idea of its Structure that presents it self to him will be undoubtedly that of a Body rowl'd up, as I have said; but I think a more easy Way to conceive that fully, will be first to imagine two oblong hollow Hemispheroids cas'd closely over one another, and cover'd with a Lid slit thro' the Middle lengthwise; and then that this Cavity is fill'd up by another Body, adhering to or proceeding from the whole under Part of one Side of the Lid, but loose from the other, under which the Edge of it is turn'd up, so as to form a new kind of *Sulcus*, continuous with the former, tho' not always in the same right Line. This inner Body I know no better Way to express, than by calling it a *Process* arising from one Side of the Slit or *Sulcus* so often mention'd. The Structure of a single Kernel is to be conceiv'd much after the same manner, only here the Slit is generally wider, the two Sides of it being not flat, but convex; and so appear rather to be a Continuation of the same Figure with that of the Backside of the Kernel, than as a Lid laid over a Cavity. By this means likewise, the Figure of the Cavity varies, and that of the *Process* along with it. In every thing else the Structure of both Kinds of Kernels is the same: And I have only these two Things further to observe about them.

First, that the two *Lamina* of which they are compos'd, are not every where of the same Thickness; from whence it follows, that one Side of the Cavity is sometimes shallower than the other. In the next Place, the *Process* does not always come out from the same Side of the *Sulcus*; or, which is the same thing, the Kernel is not always rowl'd up one Way. By which I mean, that the Situation of all the Parts of the Kernel being once determin'd by that of the seminal Plant, (of which in the next Article,) the *Process* will be found to adhere sometimes to the right Side of the *Sulcus*, and sometimes to the left.

Rauwolfius has taken Notice only of the Colour of the Kernels, and that, he says, is yellowish.

From *Alpinus* we learn, that the Kernels he found in *Egypt* were of a sweet Taste, mix'd with a little Bitterness, but no Sharpness. Whether he was altogether in the right in this, I leave to every Body's Experience to resolve them.

Clusius tells us that they are of a darkish yellow Colour, acid Taste, and flat on one Side.

J.B. that 'the Coverings being remov'd, there appears a hard Kernel, much of the Shape of a date Stone, with an hollow running thro' it lengthwise; of a pale ash Colour, and a bitter unpleasant Taste; and that

that all the way from the *Umbilicus* to the opposite Point, it appears as if it were divided into two Grains (*ab umbilico ad oppositum mucronem gemina ostentat grana.*) From the whole of what we have quoted from this Author, both here and in the last Article, it appears plainly that his Description was taken from a Fruit with only one Kernel; and therefore it is not easy to guess the Meaning of the last Words of it. Considering the Place where they lie, I should be inclin'd to think they were added by the Editors, for they are no ways of a Piece with the rest; but if they do really belong to *Bauhinus's* Text, I can make no more of them than this, That when a single Kernel is view'd on that Side on which the *Sulcus* lies, it appears as if it were divided into two Grains.

But whatever be the true Meaning of them, I can find nothing in all this Description that contradicts what we have heard from *Clusius*; and therefore I cannot imagine the Reason why *J. B.* should add, that tho' the outward Appearance of this Fruit answer'd in every thing to the Figures given us by *Clusius*, yet there were other things in which they did not agree; and that therefore he durst not say that his was the same with that from whence *Clusius's* Figures were taken. It may be his Scruple was grounded on this, that *Clusius's* Berries were double, and his own single.

By *Olearius* the Colour of the Coffee Kernel is compar'd to that of common Wheat, and the Taste to that of *Turkey* Wheat.

We have heard already, that according to *Veslingius* the Taste of them is very sensibly bitter.

Parkinson informs us, that on each Side of the Husk of the Coffee Fruit lieth a small long white Kernel, flat on that Side they join together, of an acid Taste, and somewhat bitter withal.

Banefius distinguishes the Coffee Kernels into two Sorts, with respect to their Colour; one he says is whitish, the other of a darkish Citron Colour, tending towards a green; and these last are to be prefer'd to the first. All this is true enough in fact, but it seems to be owing to our Author's not having understood *Avicenna*, that ever he was so lucky as to observe it. *Avicenna* has told us the same thing of a Root which he calls *Bunchum*, and this *Banefius* and others, as we shall afterwards hear, have mistaken for the *Buna* or Coffee Fruit.

The curious Enquiries which the learned *Dr. Grew* made concerning the Seeds, as well as all the other Parts of Plants, have furnish'd him with some very uncommon

Observations concerning the Coffee Fruit in particular, besides what he has said about other Seeds, which will equally agree to it. These last I leave to be consulted in his excellent *Anatomy of Plants*; the others must not be omitted here. Having describ'd the Coverings that belong to Seeds, which he proves, in the greatest Part of them, to be three in Number, he observes, that in many there is a *Vitellum* or Body analogous thereto, which is neither Part of the true Seed, nor Part of the Covers; but distinct from them both. This he tells us makes sometimes the principal Part of the Fruit, being much bigger than the true Seed it self; and in enumerating the different Figures, Dispositions, and other Properties of these *Vitella*, among the rest he observes, that in Goosegrafs or Cliver it is of a horny Substance, but shap'd somewhat like a Bonnet with the Rims tuck'd in; and so in the Coffee Berry, but rowl'd or folded up into a kind of oval Figure, with a Notch or *Rima* running thro' the Length, where the two Ends meet. This Passage contains the only Hint that is to be met with in Authors concerning the true Structure of the Coffee Kernel; and I hope it will be still better understood by the Account I now give of it.

Dr. Robinson has observ'd but little about these Kernels; under the second Skin, he says, lie generally two Kernels, sometimes one, round on one Side and flat on the other. On the flat Side of the Kernel there is always a Slit or Mouth; so that every Kernel does exactly resemble a *Concha veneris*.

Lemery compares the two together to a young Pea in Bigness; and says further, that they are of an oval Figure, easily parting into two Halves; of a yellowish Colour, with a Cast of white.

Langius says the Kernel is of a mealy Taste.

Tournefort, that the Seeds are hard, of a whitish ash Colour, convex on one Side, flat on the other, and furrow'd; of a mealy Taste, and without any Smell; five or six Lines in Length, and three in Thickness.

Chomel and *Andry* agree in every thing with *Tournefort*; only the last adds, that these Seeds are very heavy in proportion to their Bulk.

Mr. Bradley, as we have already heard, has observ'd that the Coffee Fruit has two Kernels, which split in the Middle, like the Bay Berries of the Shops. It is true, the Coffee Kernels do split in the Middle, and so do the Bay Berries of the Shops; but wherein the Likeness of their splitting consists, I should be glad to learn.

M. De

M. De Jussieu's Observations about the Kernels are these: ' In each of the inner Coats is contain'd a callous oval Seed, arch'd on the back Side, and flat on the other, in the Middle of which is a pretty deep *Sulcus* running thro' its whole Length. Sometimes one of these Seeds proves abortive, and then the other grows commonly bigger than it would otherwise have been; both Sides of it become more convex, and it fills up the whole Cavity of the Fruit.

Monf. La Roque has added some new Observations still, concerning the Progress or gradual Formation of these Kernels: ' Under the Pulp, says he, lies the Bean or Grain which we call Coffee; and even when the Fruit has arriv'd at its full Bigness the Bean is extremely tender, and

of a disagreeable Taste; but as the Fruit ripens, it acquires by degrees a little more Solidity; and by the time that the Pulp is nearly dried up, the Bean is become pretty hard, and of a light green Colour, swimming in a thick brown and bitter Liquor.

Valentini tells us, that ' what is call'd Coffee, is nothing but the Kernels of certain small Nuts, consisting of two Parts, like Beans, arch'd on the upper Side, flat and furrow'd on the other; of a dark yellow Colour, mealy Taste, and Smell like that of burnt Beans. It is Pity this Author did not add, that it was the Smell of roasted Coffee he meant, and then the Comparison would not be amiss; neither are these two much different in Virtues, if we may believe the learned Doctor Cheyne.

A R T. III.

The Seminal Plant, or true Coffee Seed.

WE have heard from Dr. Grew, that the main Body of the Kernel describ'd in the last Article, is not the true Seed, but only a *Vitellum* or Body analogous thereto; which he sometimes likewise calls the bulky or cartilaginous Cover of the Seed. As he is the only Author who has observ'd this Difference, so none but he has describ'd what the true Seed, as distinguish'd from the *Vitellum*, really is. ' The *Fœtus*, or true Seed in the Coffee Berry, says he, lies in the inner or cartilaginous Cover, where one would not expect to find it, near the Top or Surface of the Back. The Lobes of the Seed are vein'd like two very minute Leaves, and join'd to a long Root like a Stalk, the End of which comes just to the Bottom of the Cover, ready for its Exit into the Ground.' All this he has express'd by five Figures in Tab. 77. of his *Anatomy of Plants*; whereof the first exhibits the hilly or furrow'd Side of the Coffee Berry; the second, the Back; the third, the Back par'd a little, so as that the true Seed may appear *in situ*; the fourth, represents the true Seed taken out of the Kernel; and the fifth shews it very much magnify'd.

This is the Account which Dr. Grew has given us of the true Seed, (or, as it is call'd by *Malpighi*, and others since his Time, the *Seminal Plant*) of the Coffee Fruit; and whoever is acquainted with Dr. Grew's Writings, knows, that according to him, in every Seminal Plant may be distinguish'd the Radicle, Lobes and Plume. This Remark was necessary in order to the understanding

ing of some Terms which I shall be obliged to make use of in explaining what farther Observations I have made, both concerning the Situation and Structure of the Seminal Plant.

It lies between the two *Lamellæ* of the *Vitellum* or Body just now describ'd, in a Bed exactly fitted to it, the *Radicle* always terminating at the Extremity of the *Sulcus*, which in an entire Kernel may be discover'd by a round Speck, of a different Colour from the rest of the Surface. As the Back of the Kernel is convex, the Seminal Plant, to accommodate it self to that Figure, is likewise bent upwards, and so lies crooked. The Position of it is not exactly according to the Length of the Kernel, or parallel to the longest Diameter of it, but oblique; it being all on one Side of the *Rima* (as may be seen by Candle-light, even with the naked Eye) in an entire macerated Kernel. It is not, however, always on the same Side, but sometimes on the right, sometimes on the left; and yet this Position is no ways casual, but regulated by the Rowl or Fold of the Berry; that is, the Seminal Plant lies always on that Side of the *Sulcus* to which the *Process* is fix'd.

When it is carefully taken out of the Kernel, the Figure of it resembles nothing so much as the Ace of Spades in Cards, only the *Radicle* is longer in proportion to the Lobes, than the Handle of that Spade is commonly made. The Colour of it appears then lighter than that of the Kernel. And the *Radicle* or little Root, as far as I can perceive, is exactly round, and runs tapering from one End to the other; that to which the Lobes adhere being smallest, as is well express'd in one of Dr. Grew's Figures. The Lobes or Leaves may easily be separated from one another all the Way to their Insertion into the *Radicle*; but nothing like a Plume is discernible betwixt them.

I have only further to remark, that in the Situation of this Seminal Plant, as well as in the whole Structure of the Kernel, the Wisdom and Contrivance of Nature is very discernible. The Extremity of the *Radicle* is placed in the weakest Part of the whole Kernel, and consequently finds the easiest Passage possible into the Ground; the two *Lamellæ* are there, as it were, only tuck'd in; and thus small *Rimæ* or Chinks must necessarily be left, which in dry'd Kernels we see oftentimes increas'd to very sensible Clefts: Besides, upon the least Swelling of the Kernel in the Ground, these Folds must extend themselves, and by this means likewise favour the Exit of the *Radicle*. Again, by the oblique Situation of the whole Seminal Plant, and always on that Side to which the *Process* is fix'd, they lie in the most secure Part of the whole
O Kernel,

Kernel, which would have been quite otherwise had they lain strait, and so over the *Sulcus*. In fine, the Kernel it self is roll'd up in the manner we see it, not only for the Security of the Seminal Plant, but also that it may unfold by more easy Degrees, according as the Lobes and Plume are ready to expand themselves. The first of these Ends accounts likewise for the Necessity of the Process, the second for that of the *Rima* or *Sulcus*, and both of them for the Conveniency of a double *Lamina* in the Kernels. But as this unfolding will require Time, the Radicle probably gets a very sure Footing in the Ground, before the Seminal Leaves reach the Surface of it.

C H A P. IX.

The Culture of the Coffee Plant in England.

HAVING already publish'd an Account of the Management of this Plant in its native Country, *Arabia Felix*, I shall here confine my self to the Culture of it in the Western and especially in the Northern Parts of *Europe*, the Directions to be observ'd herein being what it principally concerns us to be acquainted with. Very little has been publish'd on this Subject by any Author except Mr. *Bradley*, whose Observations I shall give in the same Order in which they appear'd ; to these I shall subjoin the few Remarks which have been made by other Botanists; and then conclude with a Paper of Instructions communicated to me by an ingenious Gardiner, Mr. *Thomas Knowlton*, founded entirely on his own Experience.

In his first *Treatise on Coffee*, Mr. *Bradley* tells us, that ' the
' Coffee Plant having now found its Way into *England*, it may
' be necessary to offer some proper Directions for its Culture,
' agreeable with the Method observable in the *Amsterdam* Gar-
' den. When we shall have an Opportunity to propagate these
' Trees from the Berries, we must then, immediately after they
' are gather'd, carefully take off the outside Husk, and separate
' the two Seeds which are found in each; clean them from the
' Pulp, and set them an Inch deep in Pots of fine Earth, which
' are already warm in a Bed prepar'd with Horse-litter, keeping
' the

' the Glasses close cover'd for six Weeks, and often sprinkling
 ' them with Water. From this Way of Management we may
 ' expect them to come up in less than two Months Time after
 ' sowing. And then for their further Improvement, you are
 ' only to remark, they love Warmth, little Air, a light sandy
 ' Earth, and much Water; and this last Hint answers to an Ob-
 ' servation of that great Naturalist Dr. *Sloane*, where he tells us
 ' *That the Arabians cut artificial Channels from the Rivers, on purpose*
 ' *to nourish these Plants.* These Rules being well observ'd, we
 ' may expect them to bear Fruit in five Years Time from the
 ' putting in of the Seed.

From his *New Improvements in Planting and Gardening*, we
 learn, that ' in the Culture of this Plant the *Dutch* Gardiners
 ' prepare a Soil for it compos'd chiefly of Sand; and the Re-
 ' freshings they give it with Water are seldom and sparing in the
 ' Winter, but in the Summer it has a more plentiful Allowance,
 ' especially during the Time of its Blossom. About *June* they
 ' take it out of the House, and wash and cleanse the Leaves and
 ' Branches, and letting it remain in the Air till the Beginning
 ' of *July*, they then set it again in the Conservatory for flower-
 ' ing. In *April* and *August* they give fresh Earth to the Plants,
 ' and they thrive extremely. In raising these Plants from the
 ' Seeds, they first separate the Kernels in each Seed, and after
 ' they are clean'd from the Mucilage about them they are imme-
 ' diately set two Inches deep in Pots fill'd with sandy Soil, and
 ' plung'd into Hot-beds. The Seeds, being thus order'd, must
 ' be kept moist by frequent Sprinklings of Water, till they come
 ' up, and the Glasses over them always kept close. About
 ' six Weeks after sowing they will begin to appear, and have
 ' two or three Leaves apiece before Winter. I have heard that
 ' unless the Seeds are sown as soon as gather'd, they will not
 ' come up; and hitherto there is no other Way known of pro-
 ' pagating this Plant, but from Seeds: Tho' I think it would not
 ' be against Reason to try to inarch it upon some other Kind of
 ' *Jasmin*.

In the second Edition of his *Treatise of Coffee*, I find nothing
 material added to what we have set down from the first; but in
 his *Monthly Treatises* he has enlarg'd upon this Subject in several
 Places: The Sum of all he has said comes to this, That ' in
 ' the *Amsterdam* Gardens the Coffee Trees are kept constantly in
 ' a Glass Case, which as near as I can guess, says he, is about
 ' fifteen Foot long, and about twelve Foot wide; the Height
 ' about twenty Foot; the Front is all Glass; under the Floor is

' an

‘ an Oven for Fire, which leads into Flues, that after their Pas-
 ‘ sage here and there, end in a Chimney, as other Stoves do.
 ‘ They use no Tanners Bark in this House, nor give the Plants
 ‘ any Air all the Summer, but thro’ little Casements about a
 ‘ Foot square, placed about the Middle of the great Windows
 ‘ or Pannels of Glass; and even these little Casements are sel-
 ‘ dom open’d, because there is a Door which opens out of this
 ‘ Glass Case into a large Greenhouse, which they commonly
 ‘ keep open in the Summer-time. Their Earth is very light.
 ‘ They begin to make the Fires in the Stoves in *October*, and con-
 ‘ tinue it constantly till the Weather is warm enough in the
 ‘ Spring for the Plant. I suppose this continued Fire in the
 ‘ Stoves is necessary to continue the Growth of the Plants, when
 ‘ the Juices are once flowing; for to warm the House one Day,
 ‘ and let it cool the next, will certainly check the Growth of
 ‘ a Plant.

‘ It is observable, that when the Fruit is ripe, about the Be-
 ‘ ginning of *July*, it must be gather’d, and immediately the
 ‘ Seeds must be clear’d from the Pulp, and set in the Ground,
 ‘ otherwise they will not sprout. This Particular the Gardiner
 ‘ at *Amsterdam*, Mr. *Cornelius*, observes diligently, and tho’ I sent
 ‘ some Berries fresh gather’d, by the Post, which were not above
 ‘ four Days in their Passage to *London*, to a very great Artist,
 ‘ they could not be made to grow; but when they are set imme-
 ‘ diately, he tells us, that even in the natural Earth, he has seen
 ‘ some Coffee Plants above Ground within three Weeks after the
 ‘ Seed was put in the Ground; but then they must not be put
 ‘ in promiscuously in a Body of Earth, but planted an Inch or
 ‘ two deep in it. It is a Custom there, twice or thrice in a
 ‘ Summer to clean the Leaves of the Coffee Plants with wet
 ‘ Sponges, which takes off the Dust that stops the Pores of the
 ‘ Leaves. This I look upon to be of considerable Use, because
 ‘ I suppose the Leaves to receive some Nourishment from the
 ‘ Air, which circulates about them; and consequently the whole
 ‘ Plant is benefited by it. I observ’d likewise, that the Gardiner
 ‘ there gave them frequent Waterings, a little at a time, because
 ‘ the Earth was very light; but especially in the Summer, when
 ‘ the green Fruit was towards ripening, he gave them more Wa-
 ‘ ter than at other times, that is towards *June*.

Mr. *Bradley*’s latest Observations on the Culture of the Coffee
 Plant are contain’d in his *Appendix to his New Improvements*:
 ‘ I shall proceed, says he, to remark some Particulars relating to
 ‘ its Culture, which yet are not made publick. I have already
 ‘ given

' given my Reasons why I suppose it to be a *Jessamine*; and
 ' have in my New Improvements prescrib'd the inarching of it
 ' upon the common *Jessamine*, as we do the Plant commonly
 ' known by the Name of the *Arabian Jessamine*, which I am per-
 ' suaded will do very well, since every Day confirms me more
 ' and more that it is of that Tribe; however, I have heard from
 ' Mr. *Knowlton*, who was lately Gardiner to Dr. *Sherrard*, that
 ' in the Doctor's curious Gardens at *Eltham*, he rais'd the Coffee
 ' Trees both by Layers and Cuttings; so that if there may be
 ' some Difficulty in raising it from the Berry, there will be none
 ' in raising or propagating of it these Ways.

' But there is one thing which still remains to be mention'd
 ' concerning the Management of the Coffee Tree, which I have
 ' only slightly touch'd upon in my New Improvements; and
 ' that is, the Necessity of washing the Leaves and Shoots about
 ' *June*, and even in *September* too. This must be done with a
 ' Sponge and Water, and if there is some Tobacco steep'd in the
 ' Water, I believe it will do good, for I find that the Leaves
 ' and Stalks of the Coffee Tree are apt to be cover'd, about
 ' *June* and *July*, with a kind of Mildew, such as may be ob-
 ' serv'd on the Flower Stalks of *Collyflowers*, which afterwards
 ' changes to little Insects that will poison the Plant; these there-
 ' fore should be carefully wash'd off as soon as we discover them,
 ' and is what is very strictly observ'd by the Gardiners in *Holland*,
 ' not only in this Case, but in the Culture of every Stove Plant.
 ' They have People on purpose to clean the Leaves of their House
 ' Plants, but more frequently the Coffee Tree than any other;
 ' and no Plants look better than theirs. I remember M. *Corne-*
 ' *lius*, the curious Gardiner at the Physick Garden at *Amsterdam*,
 ' set some Seeds of the Coffee in a Pot which stood abroad, and
 ' they came up, and made as good an Appearance as any of those
 ' that were rais'd in the Bark Bed.

By these different Steps has Mr. *Bradley* arriv'd at that Degree
 of Insight into the true Method of cultivating the Coffee Tree,
 which he is at present Master of. His Knowledge thereof he
 owns to be owing, in a great measure, to what he observ'd in
 the *Amsterdam* Garden; but what I wonder at is, that in his latest
 Performances these Observations do not always agree with those
 publish'd in the former, that is nearer the time in which he had
 made them. For some Things likewise he has been oblig'd to
 M. *Knowlton*, whose Thoughts upon this Subject we shall hear
 presently at more Length, after we have mention'd a few Remarks
 more concerning the Culture of this Plant, from Messieurs *De Jussieu*
 and *Tilli*.

The first of these Authors has told us only, that if the Seeds are not immediately set as soon as gather'd, they will never germinate; and that of this he has had several Proofs himself from Tryals made in the Royal Garden at *Paris*.

Tilli remarks further, That in the Garden of *Pisa*, during the Month of *August*, he has ventur'd to take this Plant out of the Stove, and set it under the Shade of some other Tree in the open Air, and that it was so far from suffering any Damage, that it throve the better for so doing.

M. *Knowlton's* Account of the Culture of the Coffee Plant, is in a Letter dated at *Petworth* in *Suffex*, Feb. 4. 1725-6, and besides the Discoveries it contains, it deserves to be valued for this Reason likewise, because the Directions he gives are all taken from his own Experience of what he found to answer best, not from Conjectures and Hear-say only. They may therefore be securely depended on by all who have a mind to cultivate this Plant in *England*.

' In the latter End of *July*, 1723, says he, the worthy Doctor
' *Sherrard* (with whose Brother I then liv'd) brought over from
' the Physick Garden of *Amsterdam*, one Coffee Tree of about
' three Foot high, and one Berry. The Berry, carefully co-
' ver'd over with Wax, was given to me, with some Directions
' relating to the Culture of it, from *Cornelius Voss*, Gardiner at
' *Amsterdam*; but these being no ways agreeable to my own No-
' tion, nor to the Practice of Gardening here in *England*, I begg'd
' Leave to use my own Skill, without being confin'd to them.
' The Berry being open'd, parted into two Seeds, and having
' prepar'd a good fresh rich sandy Soil, I put them into a small
' Pot fill'd therewith, about two Inches deep, and immediately
' after plung'd the Pot into a temperate Hot-bed. In about four
' or five Weeks afterwards I had the Pleasure of seeing one of
' them come up, with his Cap on his Head; and the other fol-
' low'd in a Week afterwards. They continu'd growing very fast
' both Winter and Summer alike, and in a Twelvemonth's Time
' were above two Foot high.

' Having now three Trees in good Health, I resolv'd to try
' some Experiments relating to the Culture and Propagation of
' this Plant. The first was an Inarchment on the yellow *Indian*
' *Jessamin*, and likewise on the *Arabian* and *Brasile* white *Jessa-*
' *min*; but all three without Success, tho' repeated each of them
' twice over. The next was to make an Incision at a Joint, and
' to lay four Branches down in the same Soil in which the Trees
' were planted. This succeeded very well, for in about six Weeks

' time they were all well rooted, and fit to take off. Afterwards
 ' I took eight or nine Cuttings, at different times, and with a
 ' great deal of Care I got five of them to take Root very well.
 ' It would have been easy for me to multiply these Experiments,
 ' but as I was now Master of twelve Trees, I thought it unne-
 ' cessary to give my self any farther Trouble, at that time, and
 ' I have not had so good an Opportunity since.

' In raising these Trees I used to give them frequent Water-
 ' ings, tho' but little at a time, and the Water being always well
 ' temper'd by standing a Day or two in a Stove beforehand:
 ' This last I was particularly cautious about during the Winter.

' I found by Experiment likewise, that this Tree ought by no
 ' means to have the Ends of the Shoots cut or shortened; all
 ' the pruning it will bear is to have its lowermost Branches lopt
 ' off close to the Trunk.

' Another Caution necessary to be observ'd, is to wash the
 ' Leaves often; for by long standing in the House they contract
 ' a Dust, and besides are very subject to a particular Sort of In-
 ' sect that soils them; and prejudices the young Shoots, which
 ' generally lying on the under Side of the Leaf, may have done
 ' a great deal of Mischief before they are observ'd, except we be
 ' apprised of them beforehand. They seem peculiar to the Cof-
 ' fee Leaves, for I never found them on any other Plant.



CATALOGUE of all the AUTHORS mentioned in this TREATISE.

A Bubeter Rhazes.

Medicus Arabs. Ob. 932.

Ad Regem Mansorem Libri decem, Latinitate donati.

Bafil. 1544. fol.

V. Lib. 3. c. 22. p. 74.

Avicenna.

Medicus Arabs. Ob. 1036.

Liber Cannonis.

Bafil. 1556. fol.

V. Lib. 2. Tract. 2. c. 91. p. 198. & c. 82. p. 196.

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